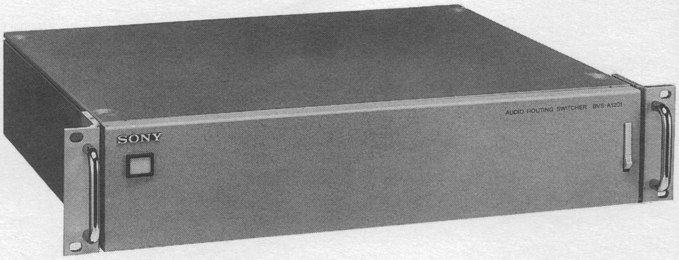
SONY®

AUDIO ROUTING SWITCHER (12×1)

BVS-A1201


SONY
AUDIO ROUTING SWITCHER BVS-A1201

MAINTENANCE MANUAL
1st Edition (Revised 3)
Serial No. 20001 and Higher (J)
Serial No. 10001 and Higher (E)

WARNING

For the customers in the USA

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important—To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.
"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC rules."
—or—
"This equipment complies with the requirements in Part 15 of FCC rules for a Class A Computing Device."
—or equivalent.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC Rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20 V AC range are suitable. (See Fig. A)

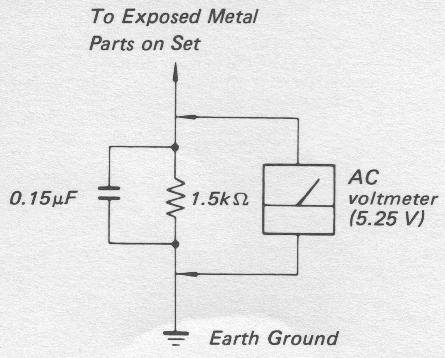


Fig. A. Using an AC voltmeter to check AC leakage.

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第1章
設　置

1−1.　使用環境

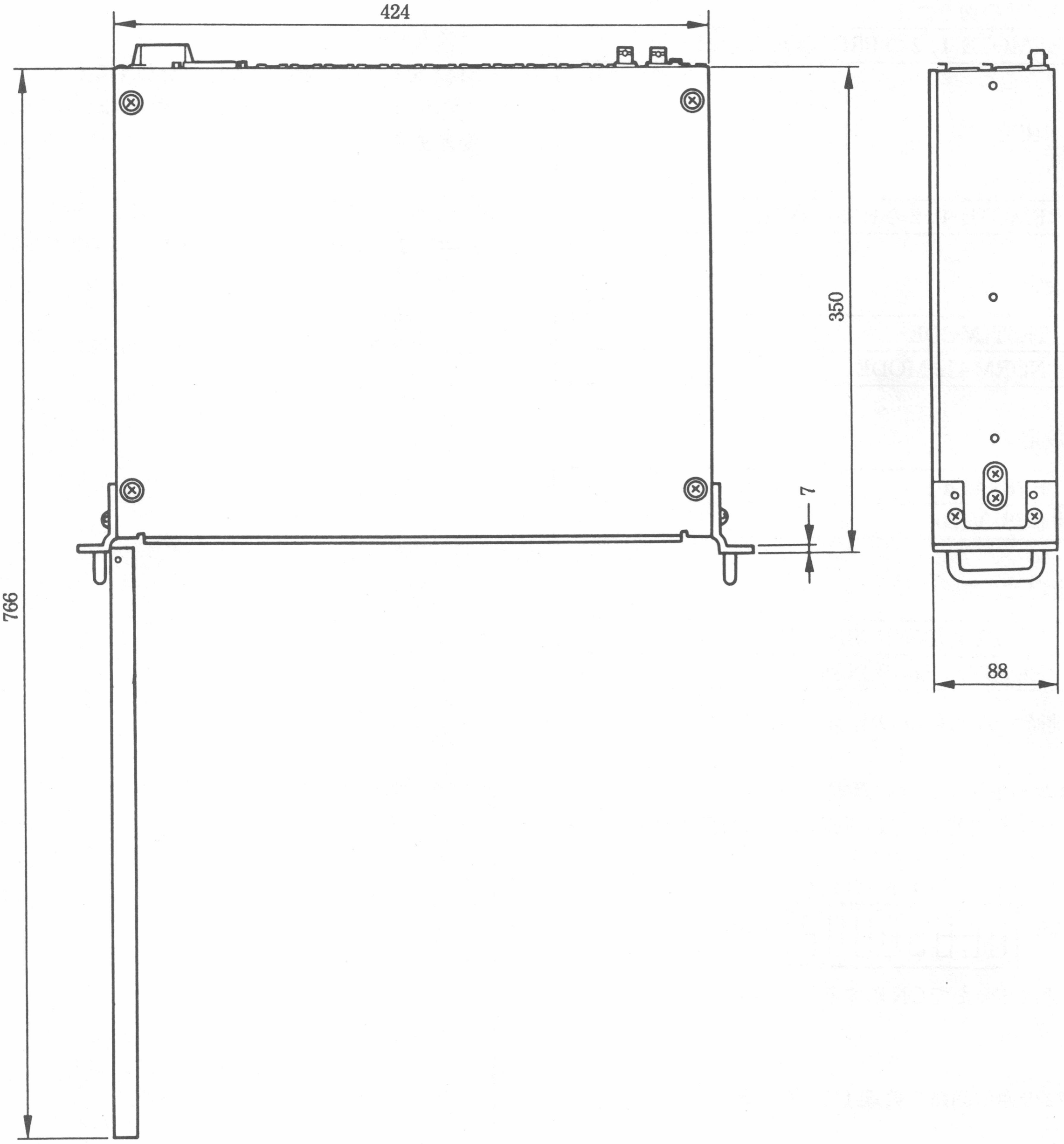
- セット内の温度上昇を防止するために，設置する場所の空気の循環には充分注意して下さい。
- セットの動作環境温度は0°C〜40°Cですのでセットを熱源の側に設置しないで下さい。

1−2.　設置スペース

- セットの外形寸法は図の通りです。

1−3.　電源

- BVS-A1201の電源は，スイッチング電源（+5 V，±15 V）を使用しています。入力はAC 100〜240 V±10％切り換えなしで対応します。



1-4. システムセレクトスイッチのセッティング

- セレクトスイッチの機能は下記の通りですので，各々のシステムにあわせて，また状況に応じて，設定して下さい。

1-4-1. IF-278基板

- S1

No.	機　能
1	テストモードの選択
2	A／Vの切り換え
3	REMOTE 1，2のPROTCOLの選択
4	未使用
5	
6	
7	
8	REMOTE 1，2のRESPONSE

- S1-1設定

ON	TEST MODE
OFF	NORMAL MODE

- S1-2設定

ON	BVS-A1201
OFF	BVS-V1201

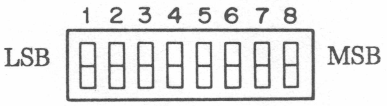
- S1-8設定

ON	NO RETURN RESPONSE
OFF	RETURN RESPONSE

工場出荷時：S1-2のみON，他は全てOFF

- **S2；ユニットアドレスの選択**

REMOTE 1，2において，制御する場合の本機のアドレス（UA2）を設定します。



1つもしくは2つまでONにすることができます。

- JW1

RS-422の通信回路の終端（100Ω）ON／OFF設定

- 工場出荷時（SW／JW）

No.	設定値
S2-1	OFF
S2-2	OFF
S2-3	ON
S2-4	ON
S2-5	OFF
S2-6	OFF
S2-7	OFF
S2-8	OFF
JW1	1（OFF）

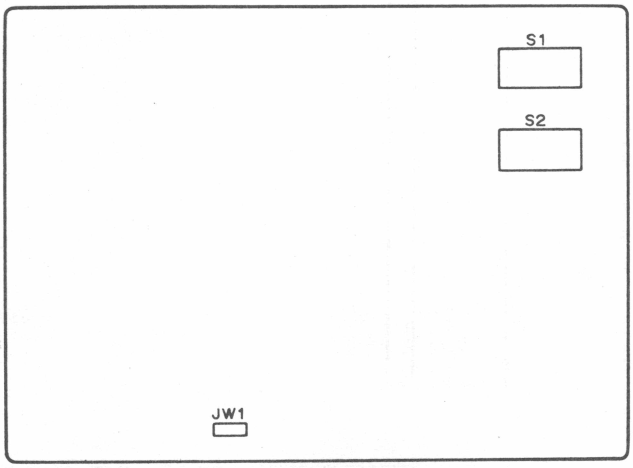
- **テストモード**

S1-1をONの状態にして電源をONにするとテストモードになり，クロスポイントを1から12に1秒毎に順番に変えます。

IN　IN　IN　IN　IN　IN　IN
1 ⇨ 2 ⇨ 3 ⇨ ····· 11 ⇨ 12 ⇨ 1 ⇨ ·····

- テストモード解除

S1-1をOFFの状態にして電源をONにして下さい。



IF-278基板（部品面）

1－4－2. ASW-18基板

- S1の設定

インピーダンスOUTPUT切り換えスイッチで600Ω／150Ω／37.5Ωの切り換えができます。
各ポジションにおける実際の出力インピーダンスは，それぞれ約140Ω／35Ω／9Ωとなっています。
トランスの出力タップの切り換えで出力レベルは，変化します。

- S101～S1201の設定

600Ω終端抵抗ON／OFF切り換えスイッチです。

- JW1：SW TIMING

スイッチの切り替えタイミングを設定します。

No.	名　称	機　　能
1	VI	JW4で設定されるビデオ信号のバーチカルインターバルで切り替わります。この設定の場合で入力がなくなった場合には，2のDIRECTの同じ動作になります。
2	DIRECT	入•出力のビデオ信号に関係なくボタンを押したタイミング又は，制御信号がきたタイミングで切り替わります。
3	CPU	IF-278基板内のCPUで設定されたタイミングで切り替わります。
4	EXT	REMOTE•3コネクター内の，VI STROBE BUSの立ち上がりタイミングで切り替わります。この場合は，共通BUSラインにタイミング情報が送られていることが条件となります。(JW5：参照)

- JW2：CONTROL

スイッチの切り替え制御方式を設定します。

No.	名　称	機　　能
1	PANEL	前面パネルのボタン，別売りのリモートコントロールパネルBKS-R1210のボタン，及びREMOTE•1，2コネクターからのシリアル信号による制御の場合に設定します。
2	EXT	BVE-900／BVE-9000等，REMOTE•3コネクターのBINARY DATA BUSを直接制御する方式の場合に設定します。

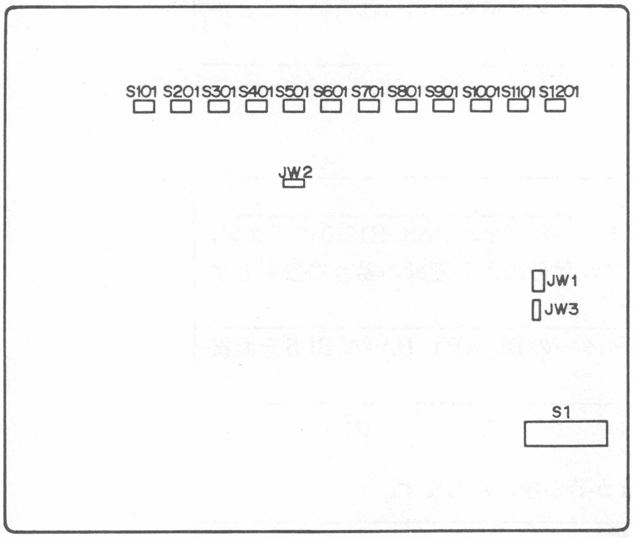
- JW3：VI SEND

VIパルスをREMOTE•3のVI STROBE BUSラインに送り出すか否かを設定します。

No.	名　称	機　　能
1	OFF	VIパルスを送り出しません。
2	ON	VIパルスを送り出します。VIパルスは1つのユニットからのみ送り出す様にします。

- 工場出荷時の設定

SW No.	設定値
S1	600 Ω
S101	ON
S201	
S301	
S401	
S501	
S601	
S701	
S801	
S901	
S1001	
S1101	
S1201	
JW1	1
JW2	1
JW3	1


S101
S201
S301
S401
S501
S601
S701
S801
S901
S1001
S1101
S1201
JW2
JW1
JW3
S1

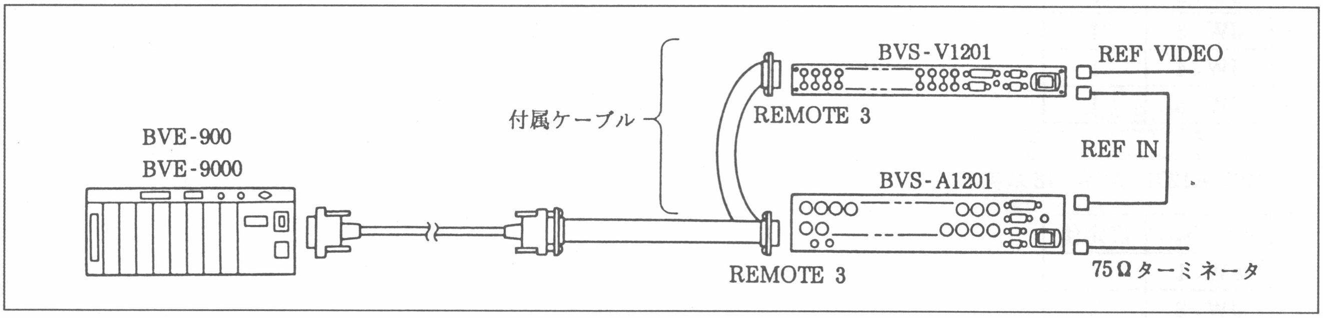
ASW-18 基板（部品面）

1－5.　接続

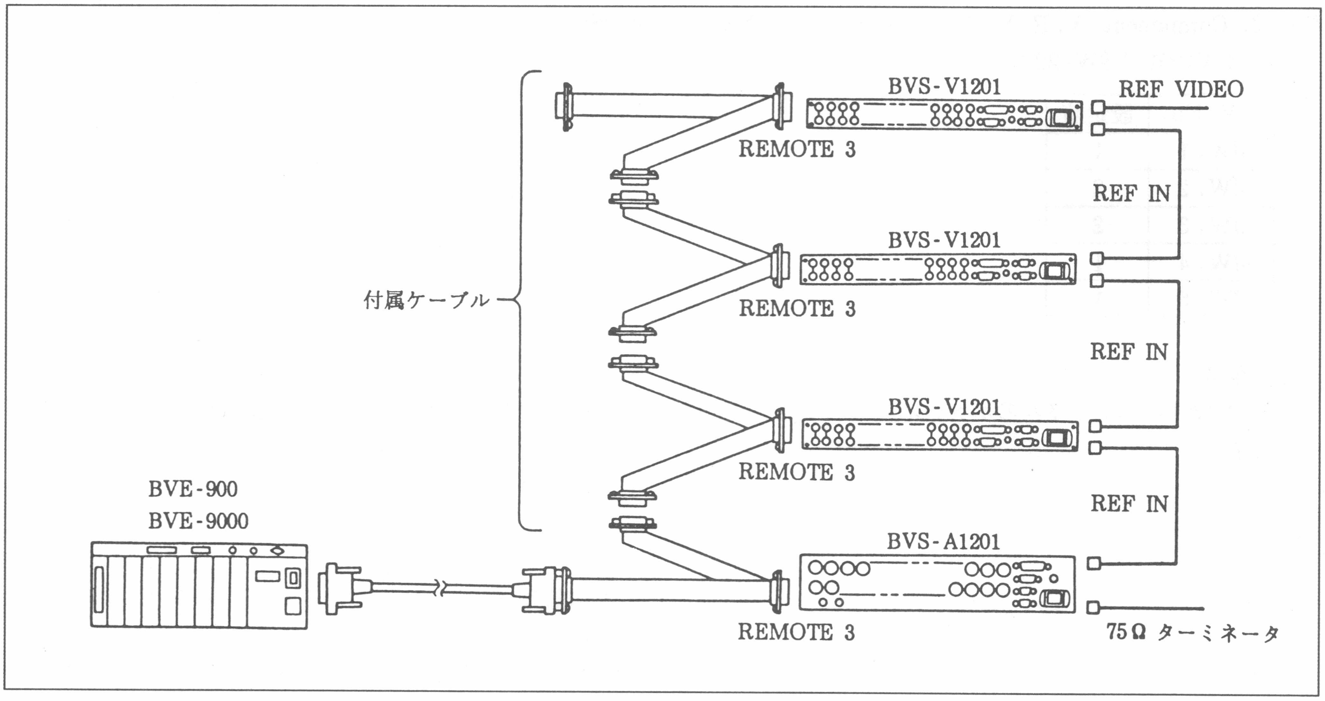
1－5－1.　BVE-900, BVE-9000 のモニタースイッチャーとして接続する場合

(1) 接続方法

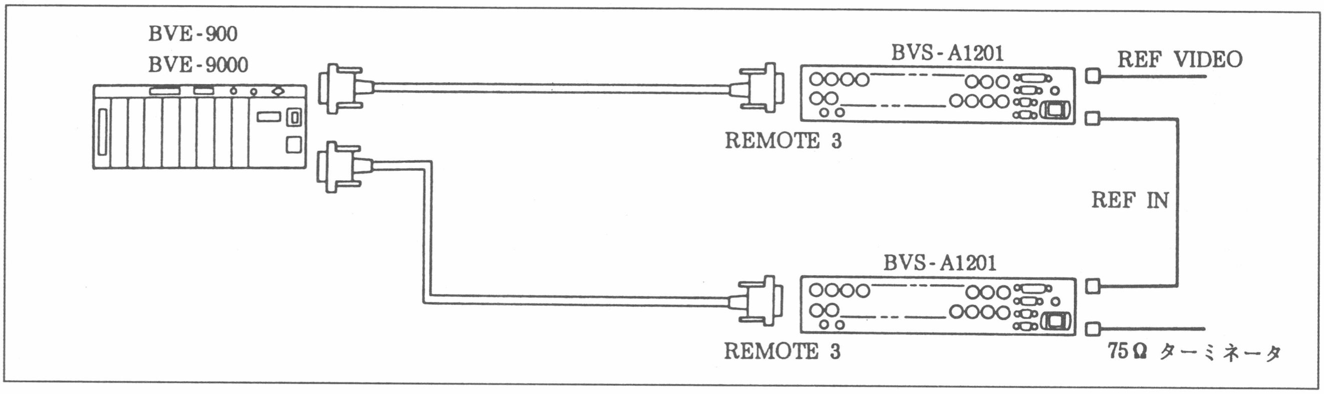
・Composite Video のとき


付属ケーブル
BVE-900
BVE-9000
BVS-V1201
REMOTE 3
REF VIDEO
REF IN
BVS-A1201
REMOTE 3
75Ω ターミネータ

・Component Video のとき


付属ケーブル
BVE-900
BVE-9000
BVS-V1201
REMOTE 3
REF VIDEO
REF IN
BVS-V1201
REMOTE 3
REF IN
BVS-V1201
REMOTE 3
REF IN
BVS-A1201
REMOTE 3
75Ω ターミネータ

・4 Channel Audio のとき


BVE-900
BVE-9000
BVS-A1201
REMOTE 3
REF VIDEO
REF IN
BVS-A1201
REMOTE 3
75Ω ターミネータ

(2) 接続後の設定

(2)－1．BVE-900，BVE-9000からのコントロールの場合は，下記の様に設定します。

- BVS-V1201，VSW-22基板の設定

JW．No．	設定値
JW．1	1
JW．2	2
JW．3	1
JW．4	1
JW．5	1

- BVS-A1201，ASW-18基板の設定

JW．No．	設定値
JW．1	1
JW．2	2
JW．3	1

(2)－2．Component (Y，R-Y，B-Y) VideoなどのSYNCなしVIDEO信号を入力している場合

- BVS-V1201，VSW-22基板の設定

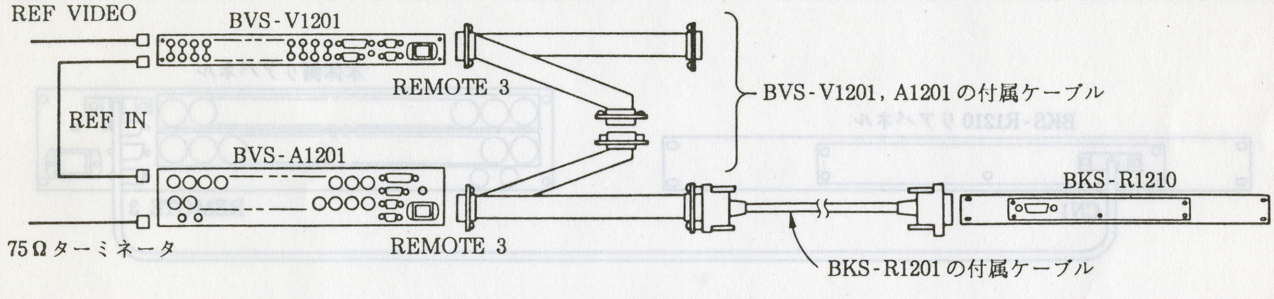
JW．No．	設定値
JW．1	1
JW．2	2
JW．3	2
JW．4	1
JW．5	1

＜注意事項＞

- BVS-V1201の前面パネルのボタンは無効となります。但し，LEDは，クロスポイントの状態を常に示します。

1−5−2. BVS-V1201とBVS-A1201を単独で使用する場合

(1) 接続方法


REF VIDEO
BVS-V1201
REMOTE 3
REF IN
BVS-A1201
75Ωターミネータ
REMOTE 3
BVS-V1201, A1201の付属ケーブル
BKS-R1210
BKS-R1201の付属ケーブル

BKS-R1210を使ってコントロールできます。

(2) 接続後の設定

- BVS-V1201, VSW-22基板の設定

JW. No.	設定値
JW. 1	1
JW. 2	1
JW. 3	1
JW. 4	1
JW. 5	1

- BVS-A1201, ASW-18基板の設定

JW. No.	設定値
JW. 1	1
JW. 2	1
JW. 3	1

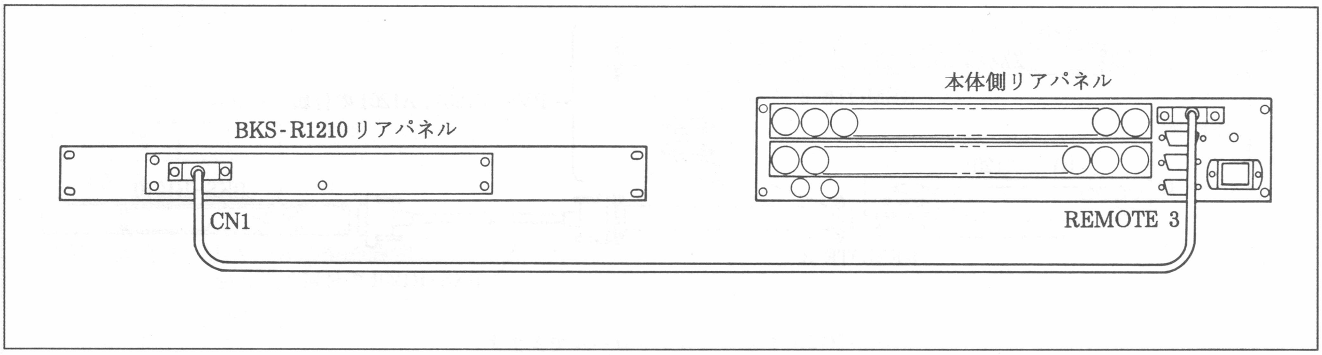
<注意事項>

- BVS-V1201の前面パネルのボタンとBKS-R1210のボタンで，それぞれ異なるクロスポイントを同時に押した場合には，先に押した方のボタンが優先し指を離すまで有効となります。

- BVS-V1201の前面パネル，及びBKS-R1210では，AUDIO(BVS-A1201)の各チャンネルを別々に選択することは出来ません。

1−6. BKS-R1210の取り付け

(1) BKS-R1210のリモコンパネルのCN1と本体側のリアパネルのREMOTE 3をBKS-R1210に付属されている接続コードで接続します。

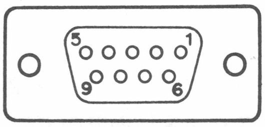

本体側リアパネル
BKS-R1210リアパネル
CN1
REMOTE 3

1−7. コネクターの入出力信号

コネクターパネルのコネクターの入出力信号は下記の通りです。

1−7−1. BVS-A1201

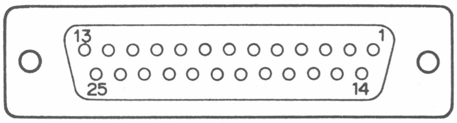
REMOTE 1, 2 (D-SUB 9ピン FEMALE)



— EXT VIEW —

PIN No.	信号名	機能 (RS422A規格)
1	FG	FRAME GROUND
2	TA	TRANSMIT A (−)
3	RB	RECEIVE B (+)
4	RC	RECEIVE SIGNAL COMMON
5	SP	
6	TC	TRANSMIT SIGNAL COMMON
7	TB	TRANSMIT B (+)
8	RA	RECEIVE A (−)
9	FG	FRAME GROUND

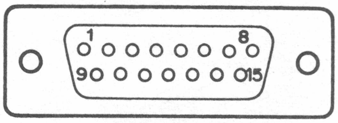
REMOTE 3. (D-SUB 25ピン FEMALE)



— EXT VIEW —

PIN No.	信号名	機　能
1	A2-A	AUDIO 2 SELECT BINARY DATA: BUS
2	A2 ONLY	ONLY AUDIO 2 SELECT BUS
3	+5 V-A	AUDIO +5 V OUTPUT
4	VI-STB	VERTICAL INTERVAL STROBE: BUS
5	A1-A	AUDIO 1 SELECT BINARY DATA: BUS
6	A1-B	
7	A1-C	
8	A1-D	
9	CH-C	CHANNEL SELECT: BUS
10	A1 ONLY	ONLY AUDIO 1 SELECT BUS
11	V ONLY	ONLY VIDEO SELECT BUS
12	KEY ON	KEY ON: INPUT
13	V-A	VIDEO SELECT BINARY DATA: BUS
14	A2-B	AUDIO 2 SELECT BINARY DATA: BUS
15	A2-C	
16	A2-D	
17	+5 V-V	VIDEO +5 V OUTPUT
18	GND	GND
19	CH-1	CHANNEL SELECT: BUS
20	CH-D	
21	CH-A	
22	CH-B	
23	V-D	VIDEO SELECT BINARY DATA: BUS
24	V-C	
25	V-B	

TALLY (D-SUB 15ピン MALE)

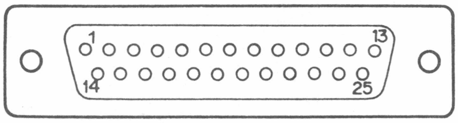


— EXT VIEW —

PIN No.	信号名	機　能
1	TALLY 1	MAKE A POINT OF CONTACT TO TALLY COMMON
2	TALLY 2	
3	TALLY 3	
4	TALLY 4	
5	TALLY 5	
6	TALLY 6	
7	TALLY 7	
8	TALLY 8	
9	TALLY 9	
10	TALLY 10	
11	TALLY 11	
12	TALLY 12	
13	TALLY COM	
14	SPARE	N. C.
15	GND	

1−7−2. BKS-R1210

D-SUB 25ピンMALE



— EXT VIEW —

PIN No.	信号名	機　能
1		
2	A2 ONLY	GREEN BUTTON : OUTPUT
3	+5 V IN	+5 V FOR GREEN TALLY
4		
5	A1-A	GREEN TALLY BINARY DATA: INPUT
6	A1-B	
7	A1-C	
8	A1-D	
9	CH-C	BUTTON BINARY DATA: OUTPUT
10	A1 ONLY	GREEN BUTTON : OUTPUT
11	V ONLY	RED BUTTON : OUTPUT
12	KEY ON	KEY ON SIGNAL: OUTPUT
13	V-A	RED TALLY BINARY DATA: INPUT
14		
15		
16		
17	+5 V IN	+5 V FOR RED TALLY
18	GND	
19	CH-1	BUTTON BINARY DATA: OUTPUT
20	CH-D	
21	CH-A	
22	CH-B	
23	V-D	RED TALLY BINARY DATA: INPUT
24	V-C	
25	V-B	

1−8. 接続コネクター

コネクターパネル部の コネクターの機能名称	接続するケーブル側の コネクターの部品番号と名称
REMOTE 1,2	RCC-5G
	RCC-10G （リモコンケーブル9P） 1-555-873-23
	RCC-30G
REMOTE 3	インターフェースケーブル （BKS-R1210付属） 接続コード 1-574-883-11
TALLY	1-558-592-11

1−9. ラックマウントの方法

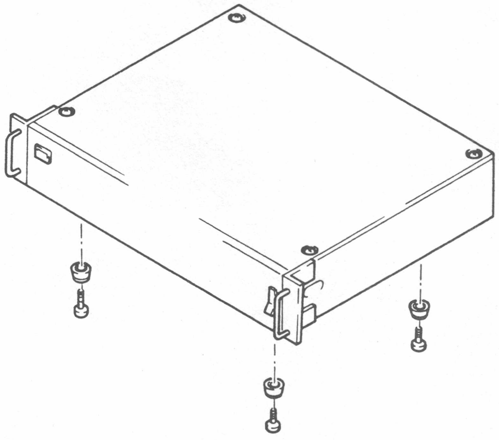
- 19インチ標準ラックに組み込む場合

1−9−1. BVS−A1201

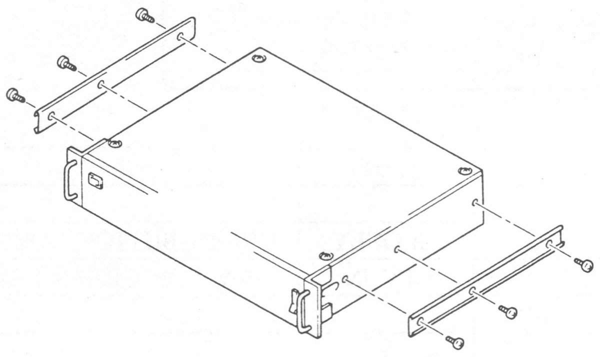
＜推奨品＞
スライドレール： ACCURIDE社製，RACKMOUNT SUDES MODEL C-203-22または C-203-22 SLIDE LENGTH 22 INCH　2本
ブラケット　：ACCURIDE社製，#5355　4個

＜用意するもの＞
インナーメンバー取り付け用ネジ（+B 4×6）6本
板ナット（3穴）8枚（ソニー部品番号3-651-812-01）
ブラケット固定用ネジ①（+B 4×8）　8本
ブラケット固定用ネジ②（+B 4×12）12本
ラックマウント用ネジ　（+RK 5×16）4本
ラックマウント用飾りワッシャー　4個
（ソニー部品番号2-297-913-01）

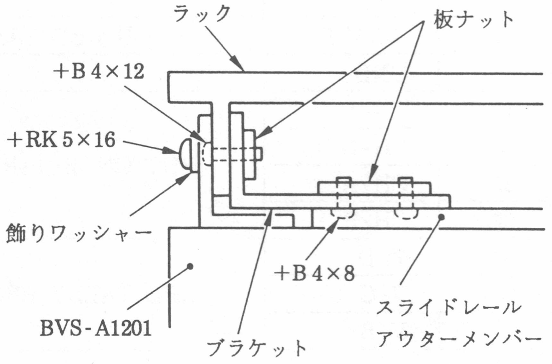
1. セット底面の脚4個を取り外します。



2. 用意したネジ（+B 4×6）でスライドレールのインナーメンバーを取り付けます。



3. スライドレールのアウターメンバーとブラケットを4枚の板ナット（3穴）を使用し8本のネジ（+B 4×8）で仮り止めします。
4. スライドレールのアウターメンバーのブラケットを板ナットでラックに取り付け，スライドレールの先端からラック外側までの寸法がセット側のインナーメンバーの位置と合う様に調整します。

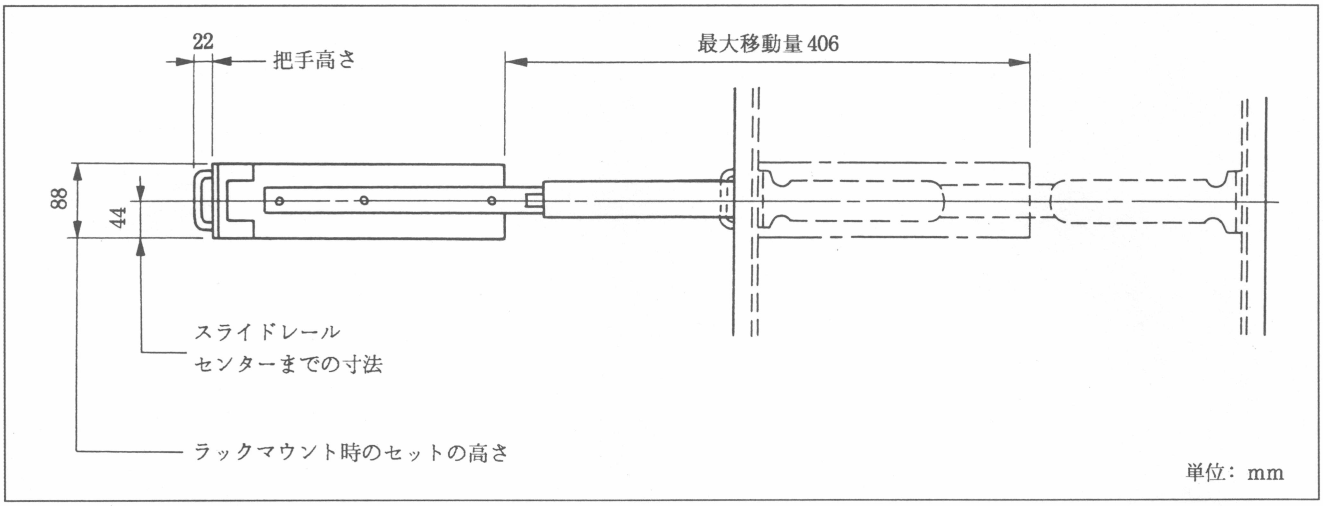


1−9−2. BKS-R1210

＜用意するもの＞
ラックマウント用ネジ（+RK 5×16）4本
ラックマウント用飾りワッシャー　4本
（ソニー部品番号2-297-913-01）

1. ラックマウント用ネジとワッシャーで取り付けます。

BVS-A1201をラックマウントした時の最大移動距離は下記の通りです。


22
把手高さ
最大移動量406
88
44
スライドレール
センターまでの寸法
ラックマウント時のセットの高さ
単位：mm

1−10. 付属品アクセサリー

• 電源コード	(E)	(2)
• 電源コード	(J)	(1)
• オペレーションマニュアル		(1)
• メンテナンスマニュアル		(1)
• ハーネス（ユニット）		(1)
• 75Ωターミネータ（終端抵抗）		(1)

SECTION 1
INSTALLATION

1-1. OPERATING ENVIRONMENT

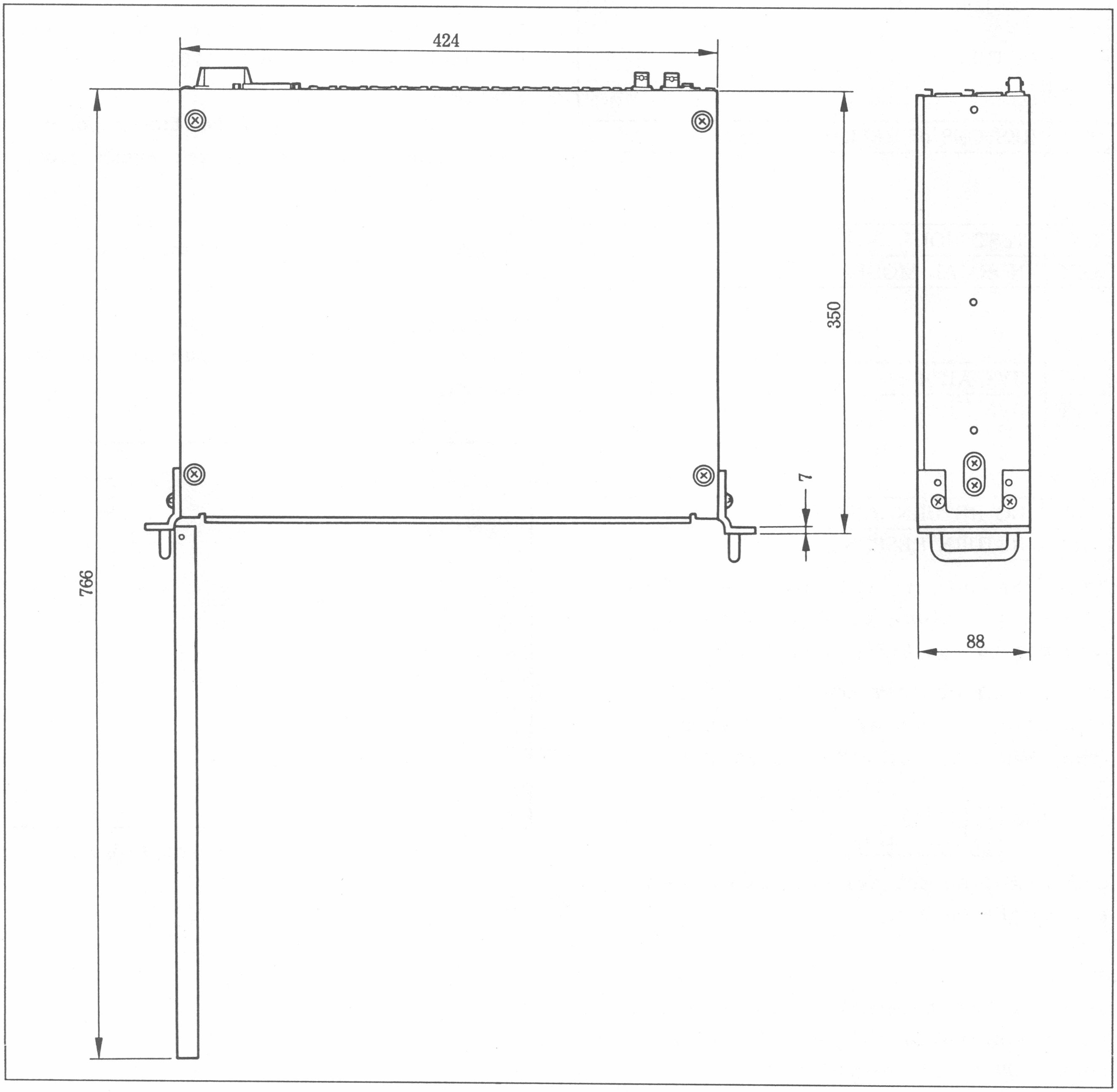
- Be very careful of the air circulation at the installation site to prevernt an increase in temperature within the unit.
- As the operating temperature of the unit is 0°C to 40°C, do not install the unit close to a source of heat.

1-2. INSTALLATION SPACE

- The external dimensions of the unit are as shown in the figure.

1-3. POWER SOURCE

- A switching regulator (+5V,±15V) is used for the power source of the BVS-A1201; therefore, the unit can be used with a voltage of 100V to 240V ±10% without changing the supply voltage.



1-4. SYSTEM SELECT SWITCH SETTINGS

.The functions of the select switches are the following. Setting them according to your system and your requirements.

1-4-1. IF-278 Board

.S1

No.	Function
1	TEST MODE SELECT
2	CHANGEING (A/V)
3	PROTCOL SELECT of REMOTE 1 and 2
4	NOTHING
5	
6	
7	
8	RESPONS of REMOTE 1 and 2

.S1-1

ON	TEST MODE
OFF	NORMAL MODE

.S1-2

ON	BVS-A1201
OFF	BVS-V1201

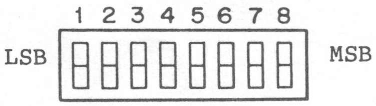
.S1-8

ON	NO RETURN RESPONSE
OFF	RETURN RESPONSE

.When the unit is shipped, S1-2 is set to the ON position, then the other switches are set to the OFF positions.

.S2; SELECT OF UNIT ADDRESS

Install the address (UA2), when control the BVS-A1201 by REMOTE 1 and 2.



One or two select switches are be able to set to the ON position.

.JW1

This is the terminal resistor switch of the communication circuit (RS-422) select to the ON or OFF by 100 ohm.

.When the unit is shipped, this switches are set to the positions as follows. (SW/JW)

No.	Position
S2-1	ON
S2-2	OFF
S2-3	OFF
S2-4	OFF
S2-5	OFF
S2-6	OFF
S2-7	OFF
S2-8	OFF
JW1	1 (OFF)

.TEST MODE

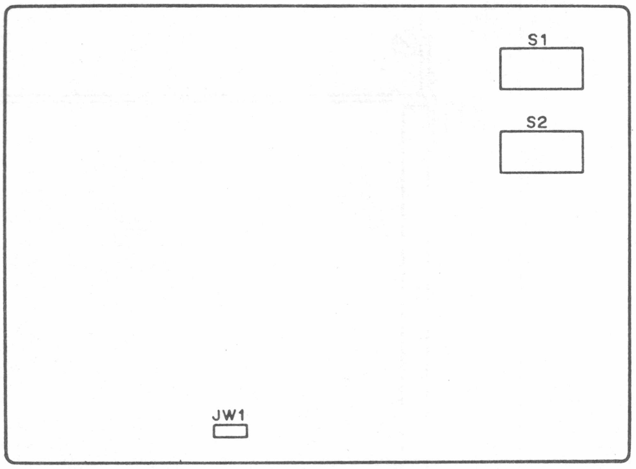
When S1-1 and power switch are set to the ON position, the BVS-A1201 execute the test mode.

The test mode changed to the X.point to pass around 1 through 12 for every second.

IN IN IN IN IN IN IN
1 ⇨ 2 ⇨ 3 ⇨ ····· 11 ⇨ 12 ⇨ 1 ⇨ ·····

.CANCEL THE TEST MODE

Put off the S1-1, then put on the power switch.



IF-278 Board (Component Side)

1-4-2. ASW-18 Board

.S1

S1 can select the 600 ohm, 150 ohm and 37.5 ohm by impedance output select switch.

The actual output impedances for each position is as follows: approx. 140 ohm /35 ohm/9 ohm. The output level can be changed by switching the transformer output tap.

.S101 to S1201

These are the terminal resistor switch selects to the ON or OFF by 600 ohm.

.JW1: Switch Timing

Setting select switch timing.

No.	Name	Description
1	VI	Changes state using the VI (vertical interval) pulse of the video signal set by JW4. Operations are the same as No. 2 below (DIRECT) when there is no input.
2	DIRECT	Changes state when a button is pushed or when a control signal is received, regardless of whether any video signals are being input or output.
3	CPU	Changes state according to the timing specified by the CPU on the IF-278 board.
4	EXT	Changes state at the leading edge in the VI strobe bus line of the connector REMOTE-3. In this case, timing information must be sent to the common bus line. (Refer to JW5.)

.JW2: Control

Setting control switch selection.

No.	Name	Description
1	PANEL	Specifies control using the button on the front panel, the button on the BKS-R1210 (optional) remote control panel, or a serial signal from the connectors REMOTE-1 or REMOTE-2.
2	EXT	Specifies direct control of the binary data bus line of the connector REMOTE-3 (for the BVE-900 or BVE-9000).

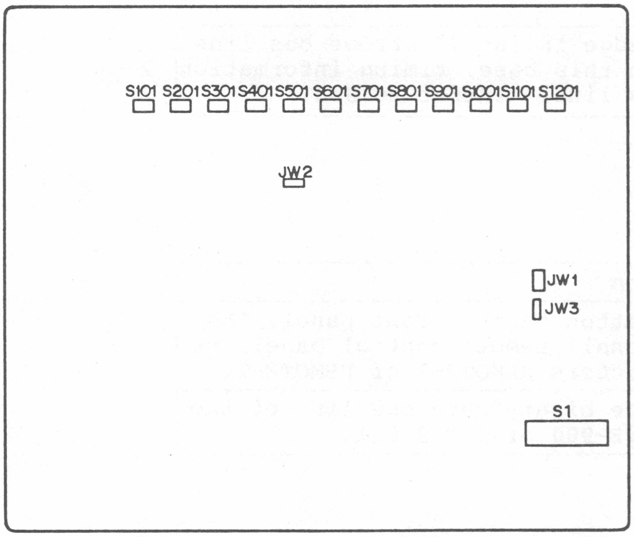
.JW3: VI Send

Setting whether the VI pulse is to be sent to the VI strobe bus line of REMOTE-3.

No.	Name	Description
1	OFF	No VI pulse is sent out.
2	ON	A VI pulse is sent out, but can only be sent out from one unit.

.When the unit is shipped, this switches are setting positions as follows.

SW No.	Position
S1	600 Ω
S101	ON
S201	
S301	
S401	
S501	
S601	
S701	
S801	
S901	
S1001	
S1101	
S1201	
JW1	1
JW2	1
JW3	1


S101
S201
S301
S401
S501
S601
S701
S801
S901
S1001
S1101
S1201
JW2
JW1
JW3
S1

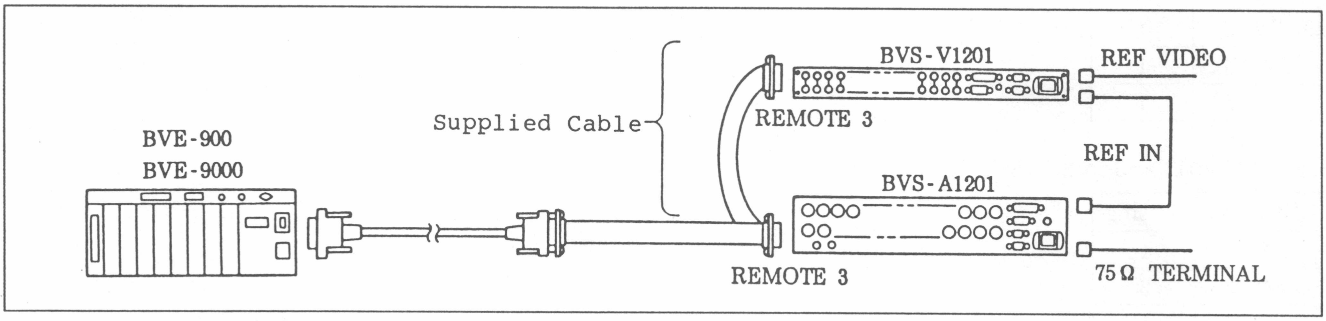
ASW-18 Board (Component Side)

1-5. CONNECTIONS

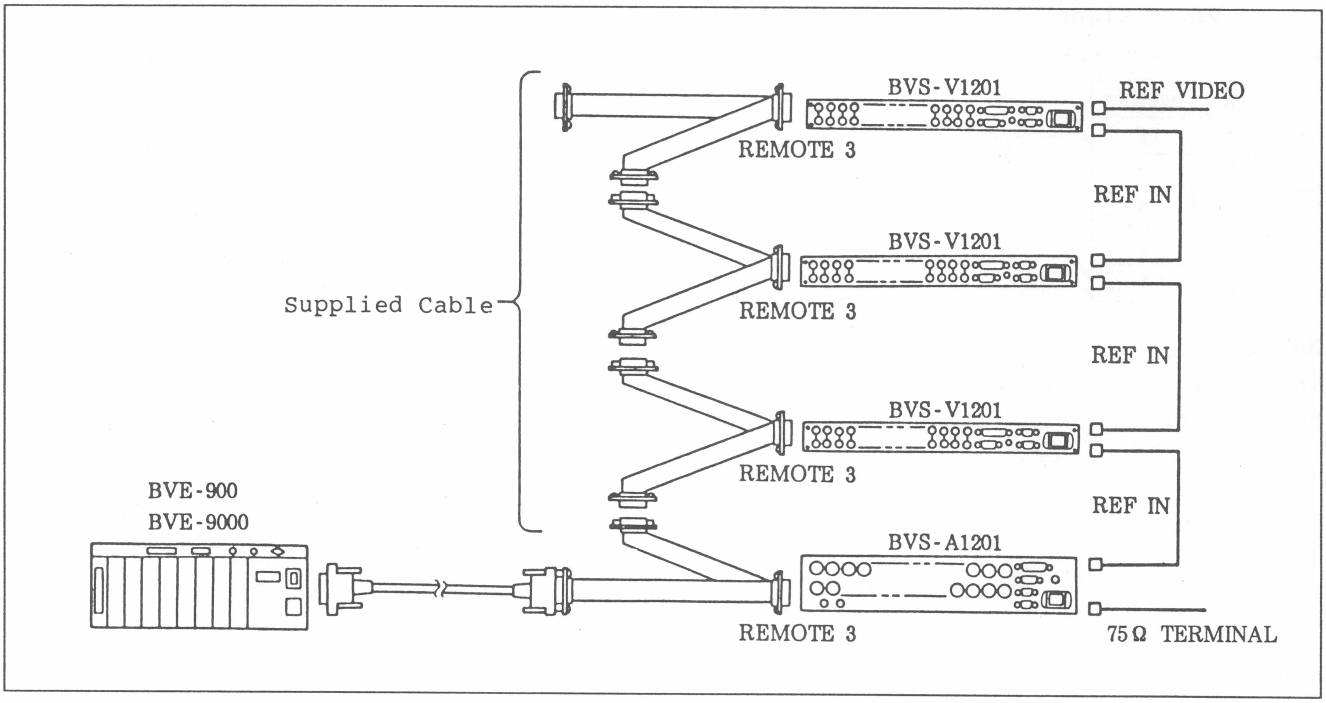
1-5-1. Connecting as a Monitor Switcher for the BVE-900/BVE-9000

(1) Connection methord

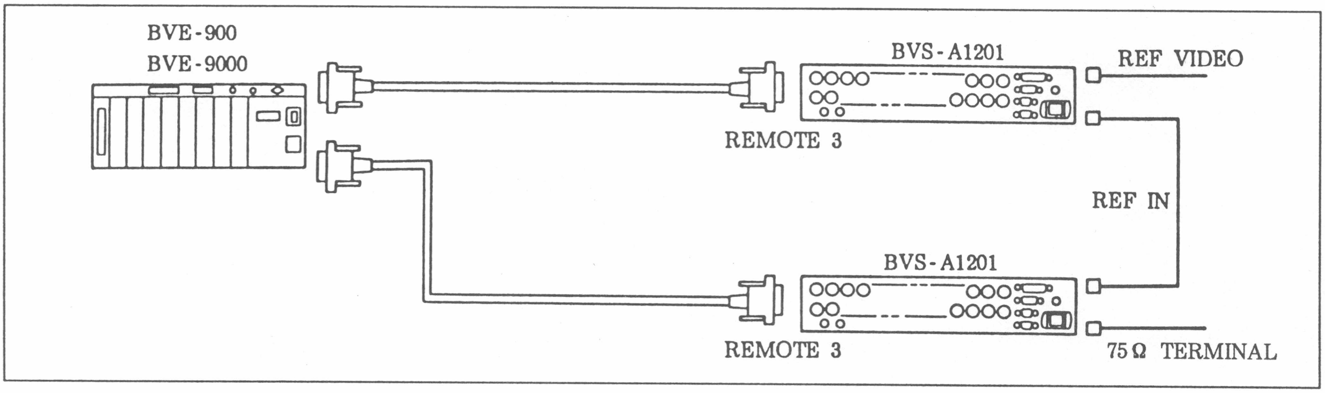
.For composite video


BVE-900
BVE-9000
Supplied Cable
BVS-V1201
REMOTE 3
REF VIDEO
REF IN
BVS-A1201
REMOTE 3
75Ω TERMINAL

.For component video


BVS-V1201
REF VIDEO
REMOTE 3
REF IN
BVS-V1201
Supplied Cable
REMOTE 3
REF IN
BVS-V1201
REMOTE 3
BVE-900
BVE-9000
REF IN
BVS-A1201
REMOTE 3
75Ω TERMINAL

.For four-channel audio


BVE-900
BVE-9000
BVS-A1201
REF VIDEO
REMOTE 3
REF IN
BVS-A1201
REMOTE 3
75Ω TERMINAL

(2) Post connection settings

(2)-1. Control values from the BVE-900 and BVE-9000 must be set as follows.

.BVS-V1201 and VSW-22 board settings

JW. No.	Setting
JW. 1	1
JW. 2	2
JW. 3	1
JW. 4	1
JW. 5	1

.BVS-A1201 and ASW-18 board settings

JW. No.	Setting
JW. 1	1
JW. 2	2
JW. 3	1

(2)-2. With video signals such as component video (Y, R-Y, B-Y) when the video signal containing no SYNC is input.

.BVS-V1201 and VSW-22 board settings

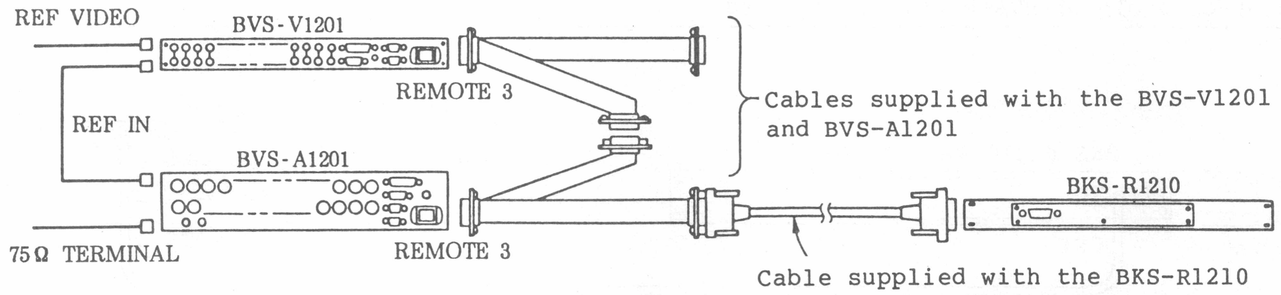
JW. No.	Setting
JW. 1	1
JW. 2	2
JW. 3	2
JW. 4	1
JW. 5	1

Note:

The switches on the BVS-V1201's front panel become invalid.
However, the LEDs indicate cross points normally.

1-5-2. Using BVS-V1201 and BVS-A1201 Independently

(1) Connection method


REF VIDEO
BVS-V1201
REMOTE 3
REF IN
BVS-A1201
75Ω TERMINAL
REMOTE 3
Cables supplied with the BVS-V1201 and BVS-A1201
BKS-R1210
Cable supplied with the BKS-R1210

Control using BKS-R1210 is possible.

(2) Post connection settings

.BVS-V1201 and VSW-22 board settings

JW. No.	Setting
JW. 1	1
JW. 2	1
JW. 3	1
JW. 4	1
JW. 5	1

.BVS-A1201 and ASW-18 board settings

JW. No.	Setting
JW. 1	1
JW. 2	1
JW. 3	1

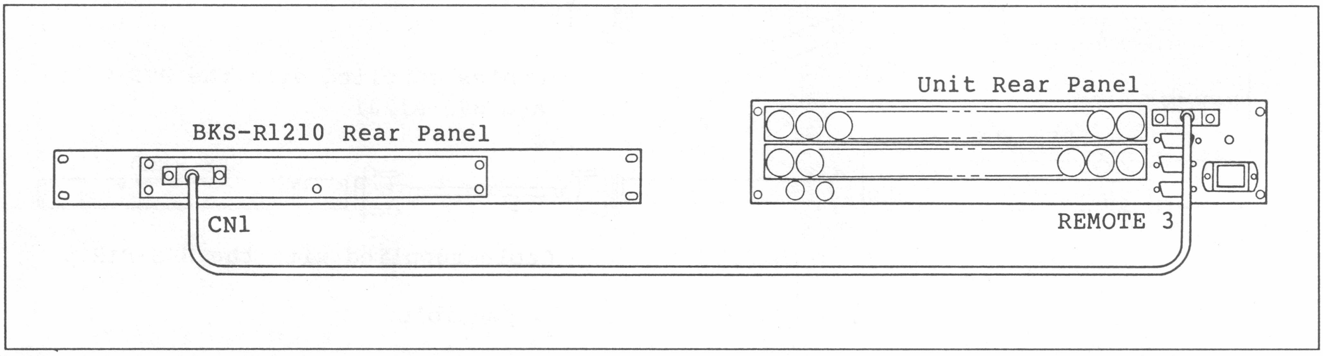
Note:

.When the switches on the BVS-V1201's front panel and the BKS-R1210 are pressed simultaneously at different cross points, before the push switch take precedence and become effective to remove your hand.

.Audio (BVS-A1201) channels cannot be selected separately using the BVS-V1201's front panel and the BKS-R1210.

1-6. INSTALLATION OF BVS-A1201

.Connect to the CN1 of BVS-R1210 and the REMOTE 3 of BVS-A1201 by using the remote control cable of BVS-R1210 accessories.

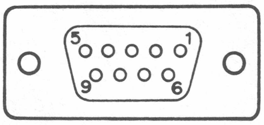


1-7. INPUT/OUTPUT SIGNALS OF THE CONNECTOR

The input/output signals of the connector on the connector panel are the following.

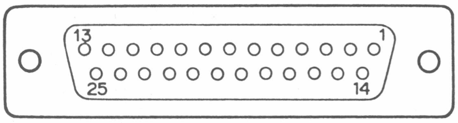
1-7-1. BVS-A1201

REMOTE 1 and 2 (D-SUB 9PIN FEMALE)



PIN No.	Signal	Function (RS422A)
1	FG	FRAME GROUND
2	TA	TRANSMIT A (−)
3	RB	RECEIVE B (+)
4	RC	RECEIVE SIGNAL COMMON
5	SP	
6	TC	TRANSMIT SIGNAL COMMON
7	TB	TRANSMIT B (+)
8	RA	RECEIVE A (−)
9	FG	FRAME GROUND

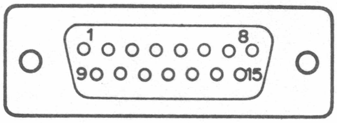
REMOTE 3. (D-SUB 25PIN FEMALE)



-EXT VIEW-

PIN No.	Signal	Function
1	A2-A	AUDIO 2 SELECT BINARY DATA: BUS
2	A2 ONLY	ONLY AUDIO 2 SELECT BUS
3	+5 V-A	AUDIO +5 V OUTPUT
4	VI-STB	VERTICAL INTERVAL STROBE: BUS
5	A1-A	AUDIO 1 SELECT BINARY DATA: BUS
6	A1-B	
7	A1-C	
8	A1-D	
9	CH-C	CHANNEL SELECT: BUS
10	A1 ONLY	ONLY AUDIO 1 SELECT BUS
11	V ONLY	ONLY VIDEO SELECT BUS
12	KEY ON	KEY ON: INPUT
13	V-A	VIDEO SELECT BINARY DATA: BUS
14	A2-B	AUDIO 2 SELECT BINARY DATA: BUS
15	A2-C	
16	A2-D	
17	+5 V-V	VIDEO +5 V OUTPUT
18	GND	GND
19	CH-1	CHANNEL SELECT: BUS
20	CH-D	
21	CH-A	
22	CH-B	
23	V-D	VIDEO SELECT BINARY DATA: BUS
24	V-C	
25	V-B	

TALLY (D-SUB 15PIN MALE)

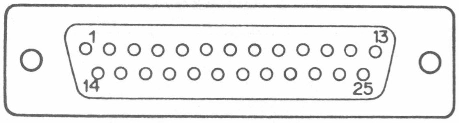


-EXT VIEW-

PIN No.	Signal	Function
1	TALLY 1	MAKE A POINT OF CONTACT TO TALLY COMMON
2	TALLY 2	
3	TALLY 3	
4	TALLY 4	
5	TALLY 5	
6	TALLY 6	
7	TALLY 7	
8	TALLY 8	
9	TALLY 9	
10	TALLY 10	
11	TALLY 11	
12	TALLY 12	
13	TALLY COM	
14	SPARE	N. C.
15	GND	

1-7-2. BKS-R1210

(D-SUB 25PIN MALE)



-EXT VIEW-

PIN No.	Signal	Function
1		
2	A2 ONLY	GREEN BUTTON : OUTPUT
3	+5 V IN	+5 V FOR GREEN TALLY
4		
5	A1-A	GREEN TALLY BINARY DATA: INPUT
6	A1-B	
7	A1-C	
8	A1-D	
9	CH-C	BUTTON BINARY DATA: OUTPUT
10	A1 ONLY	GREEN BUTTON : OUTPUT
11	V ONLY	RED BUTTON : OUTPUT
12	KEY ON	KEY ON SIGNAL: OUTPUT
13	V-A	RED TALLY BINARY DATA: INPUT
14		
15		
16		
17	+5 V IN	+5 V FOR RED TALLY
18	GND	
19	CH-1	BUTTON BINARY DATA: OUTPUT
20	CH-D	
21	CH-A	
22	CH-B	
23	V-D	RED TALLY BINARY DATA: INPUT
24	V-C	
25	V-B	

1-8. CONNECTOR

Function name of the connector on the connector panel	Part number of the connector and its name on the cable side
REMOTE 1, 2	RCC-5G
	RCC-10G (Remote control cable 9P) 1-555-873-23
	RCC-30G
REMOTE 3	Interface cable (BKS-R1210) Connector code 1-574-883-11
TALLY	1-558-592-11

1-9. RACK MOUNTING

.Mounting Onto a 19-inch Standard Rack

1-9-1. BVS-A1201

<Recommended products>

Slide rail: RACKMOUNT SUDES MODEL C-203-22
made by ACCURIDE.
SLIDE LENGTH 22 INCH. (2)

Bracket : #5355 made by ACCURIDE. (4)

<Provide the parts>

Install the inner member by six screws. (+B4x6)

Eight leaf nuts (3 holes)
(Sony parts No. 3-651-812-01)

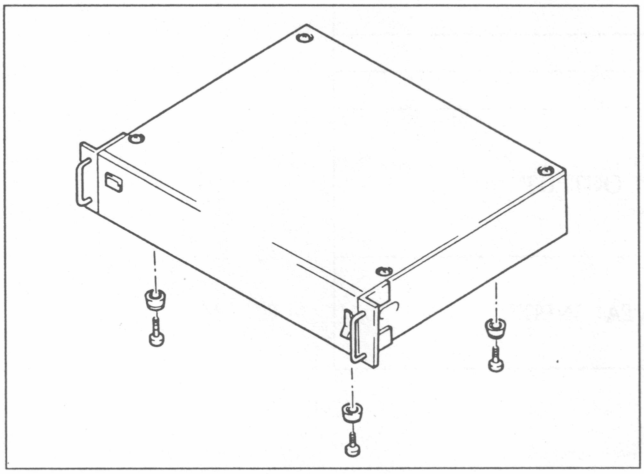
Fix the bracket to eight screws ① (+B4x8)

Fix the bracket to twelve screws ② (+B4x12)

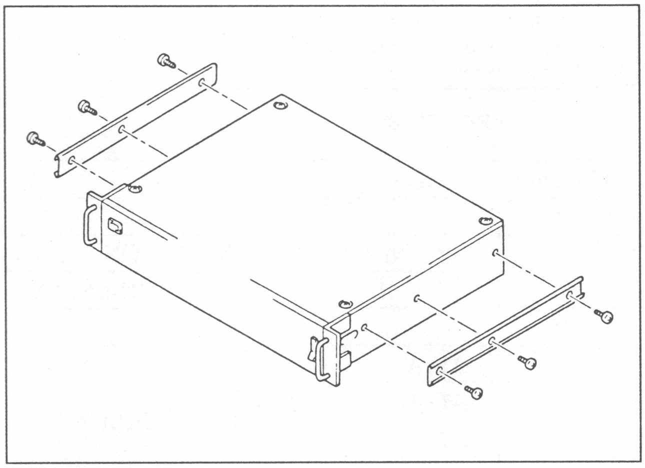
Install the Rack mounting by four screws. (+RK5x16)

Four washers (Sony parts No. 2-297-913-01)

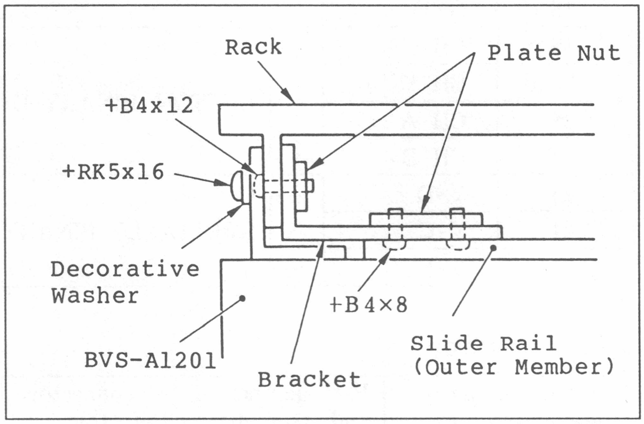
1. Remove the four feet from the bottom of the unit.



2. Attach the inner member of the slide rail to provide the screws (+B4x6).



3. Tighten the bracket and the outer member of the slide rail temporarily with the eight screws (+B4x8) and with the four plate nuts which have 3 holes.
4. Attach the bracket of the outer member of the slide rail to the rack, and adjust the dimension between the head of the slide rail and the koutside of the rack so that it meets the specification.



1-9-2. BKS-R1210

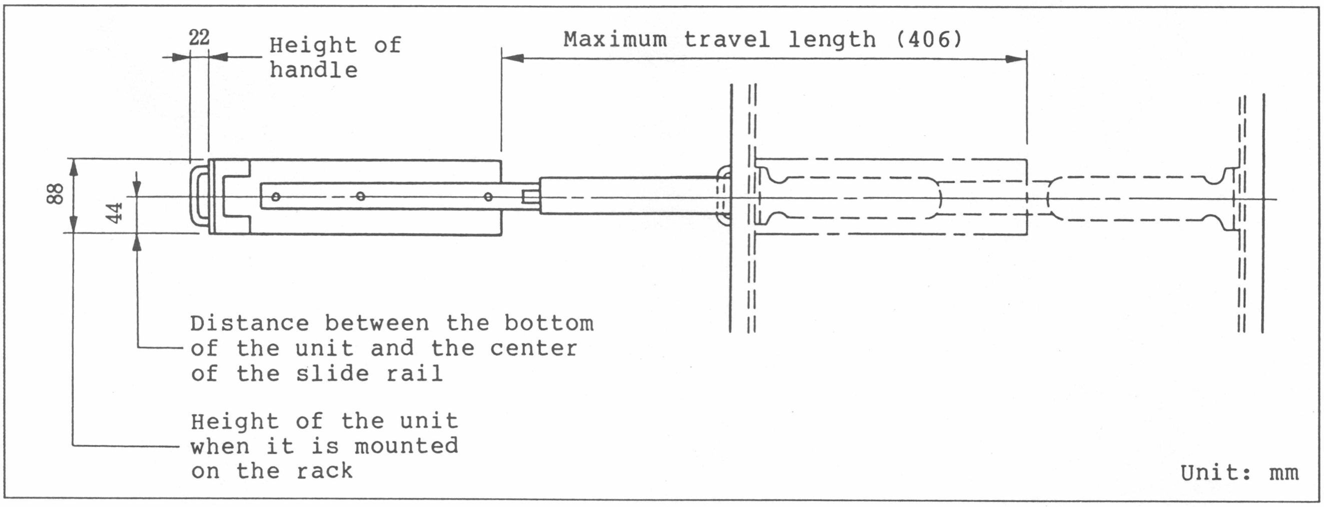
<Provide the parts>

Install the Rack mounting by four screws. (+RK5x16)

Four washers
(SONY parts No. 2-297-913-01)

1. Install the BKS-R1210 to use by four screws (+RK5x16) and four washes.

When BVS-A1201 is mounted on the rack, the maximum travel length is as follows.


22
Height of handle
Maximum travel length (406)
88
44
Distance between the bottom of the unit and the center of the slide rail
Height of the unit when it is mounted on the rack
Unit: mm

1-10. ACCESSORIES

.Operation Manual		(1)
.Maintenance Manual		(1)
.Harnes (unit)		(1)
.Extension board		(1)
.Power cable	(E)	(2)
	(J)	(1)
.75 ohm Terminal		(1)

第2章
サービスインフォメーション

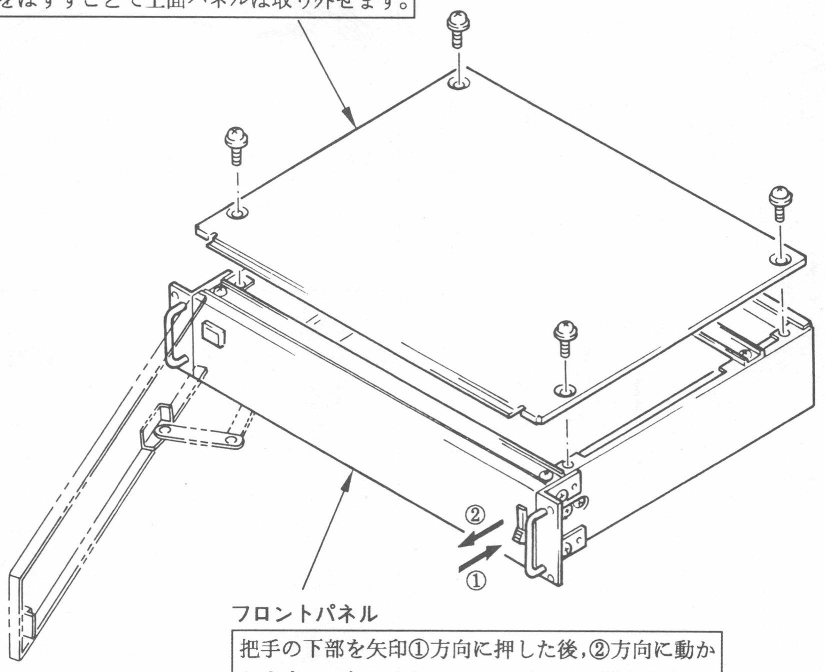
2−1. コンソールからの取り外し

- 接続されているコネクターを抜き，コンソールから静かに引き抜いて下さい。

2−2. 外装の開閉／取り外し

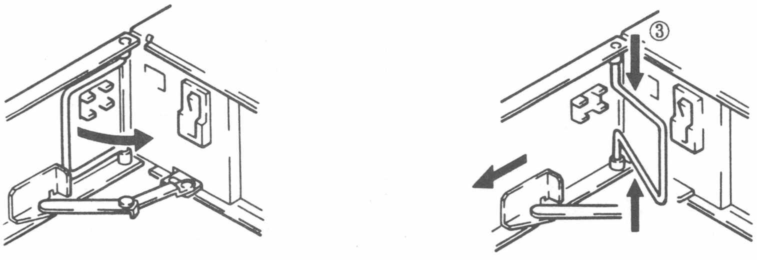
上面パネル

4本のネジをはずすことで上面パネルは取り外せます。



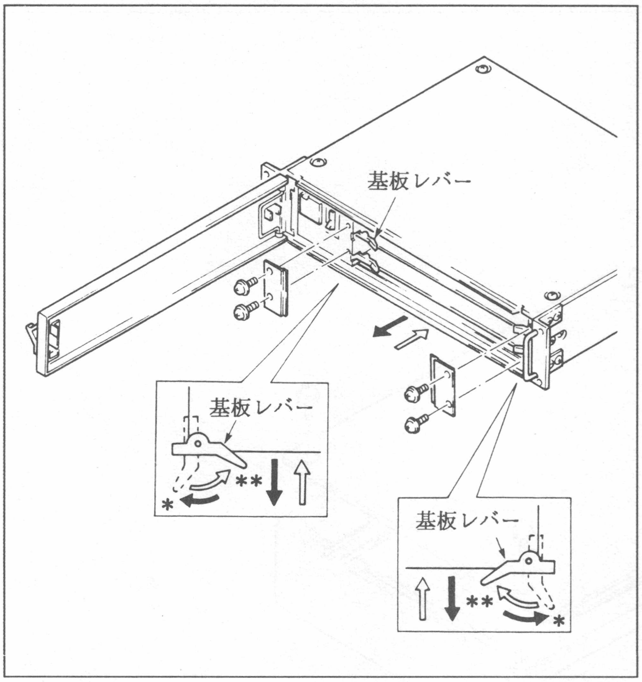
フロントパネル

把手の下部を矢印①方向に押した後，②方向に動かします。これによりフロントパネルは開きます。さらにヒンジ部分のシャフトをおこし③方向に押すとフロントパネルを取りはずすことができます。



2−3.　カード基板の取り付け／取り外し方

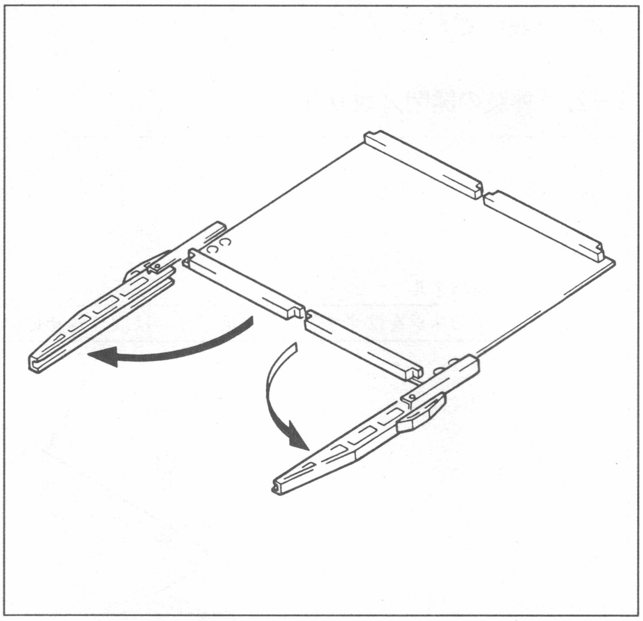
- 基板レバーを矢印＊の方向へ押し手前に引くと，取り外すことができます。
- 基板レバーガイド，基板ガイドに沿って，挿入します。基板レバーを本体の左右の穴に入れながら矢印＊＊方向に倒すと基板を取り付けることができます。


基板レバー
基板レバー
**
*
基板レバー
**
*

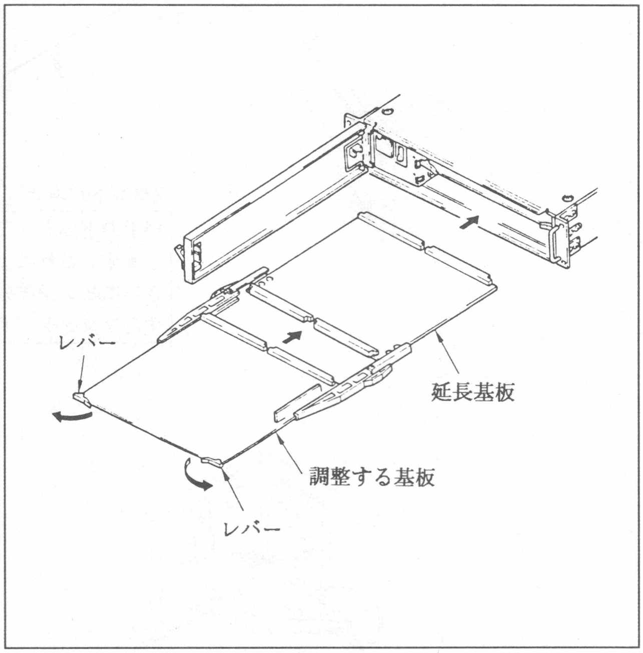
2−4.　サービス方法

・ASW-18基板の調整方法

(1) BVS-V1201に付属の延長基板のレールを開きます。



(2) レバーを外側に押し開いて調整基板を抜き，延長基板を差し込みます。


レバー
延長基板
調整する基板
レバー

2−5. 回路構成

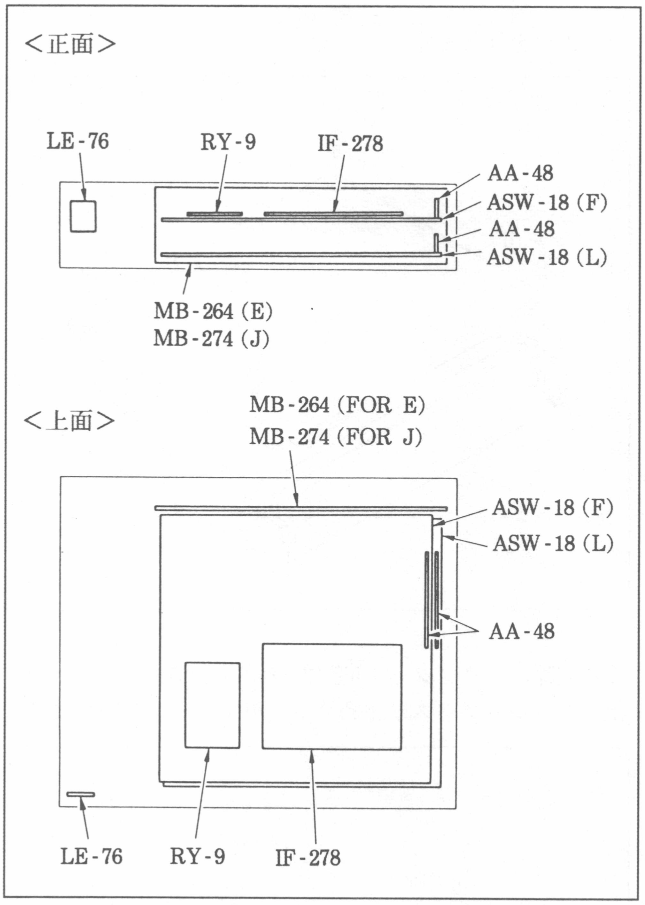
2−5−1. BVS-A1201

名　称	機　能
ASW-18F	AUDIO SWITCH BOARD
ASW-18L	AUDIO SWITCH BOARD
IF-278	SERIAL INTERFACE BOARD
MB-264 (E) MB-274 (J)	MOTHER BOARD
AA-48	AUDIO AMPLIFIER BOARD
RY-9	TALLY BOARD
LE-76	LED BOARD

2−5−2. BKS-R1210

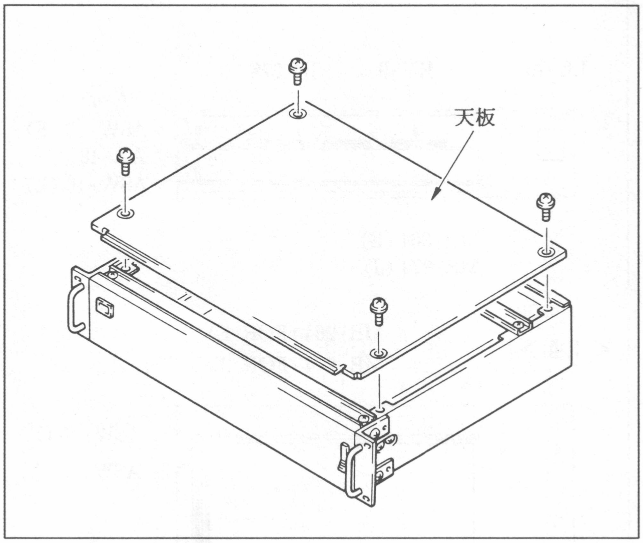
名　称	機　能
SW-354	SWITCH BOARD

2−6. 基板配置図

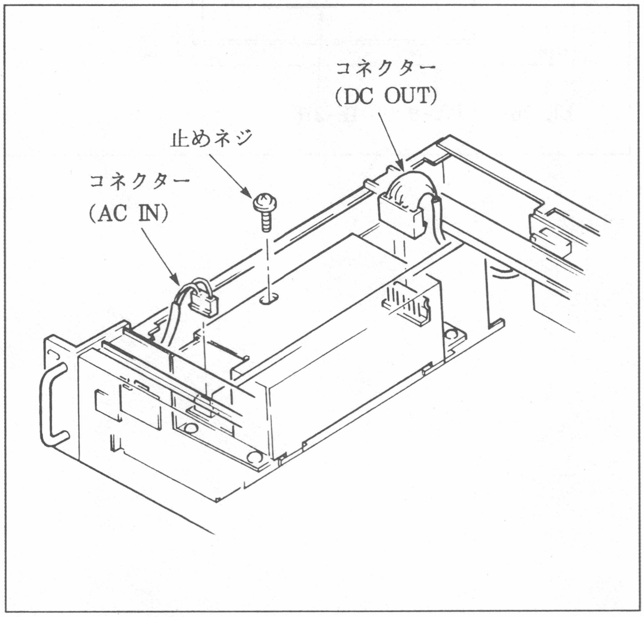

＜正面＞
LE-76
RY-9
IF-278
AA-48
ASW-18 (F)
AA-48
ASW-18 (L)
MB-264 (E)
MB-274 (J)
＜上面＞
MB-264 (FOR E)
MB-274 (FOR J)
ASW-18 (F)
ASW-18 (L)
AA-48
LE-76
RY-9
IF-278

2−7. 電源の取り外し

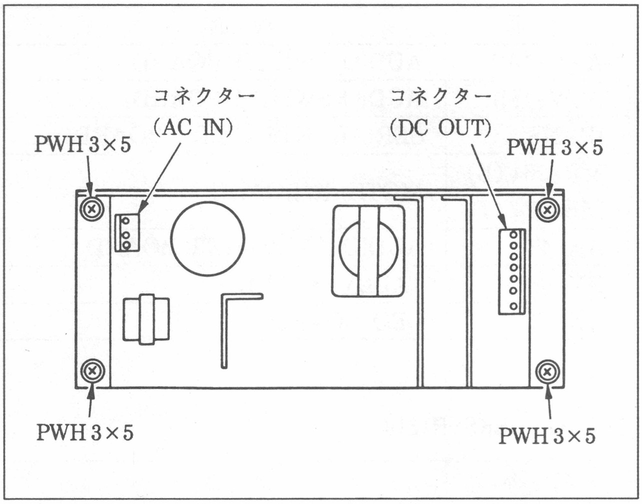
(1) 天板を外します。



(2) 電源のコネクター（前後2ヶ所）を抜きます。
(3) シールドケースの止めネジを外しケースを外します。


コネクター
(DC OUT)
止めネジ
コネクター
(AC IN)

(4) 電源を止めているネジ4本（＋PWH 3×5）を外します。


コネクター
(AC IN)
コネクター
(DC OUT)
PWH 3×5
PWH 3×5
PWH 3×5
PWH 3×5

2−8 サービス部品

1. 回路図，分解図，電気部品リスト中で⚠及び ▨ で囲まれた部品は，安全性を維持するために重要な部品です。従ってこれらの部品を交換する時には必ず指定の部品と交換して下さい。

2. パーツセンターから供給される部品は，実際にセットに使用している部品と形状等が異なることが時々あります。これらは「部品の共通化」等によるものです。

3. 分解図，電気部品リスト中SP欄がOで示されている部品は交換頻度が低い部品ですので，在庫していないことがあり，納期が長くなることがあります。

SECTION 2
SERVICE INFORMATION

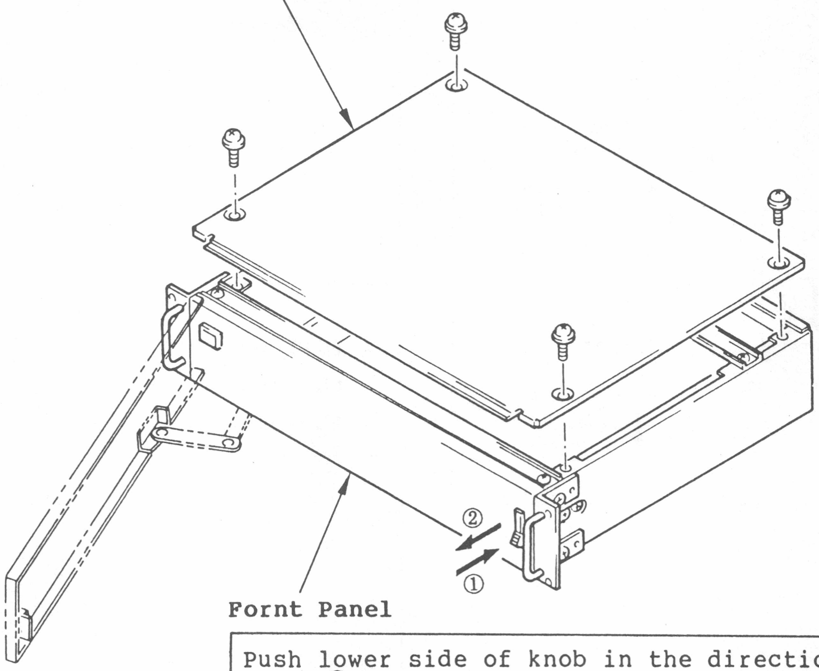
2-1. REMOVAL FROM THE CONSOLE

.Remove all connectors and slowly pull out the from the console.

2-2. OPENING/REMOVAL OF CABINET

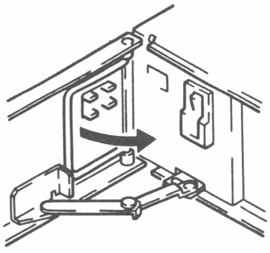
Top Plate

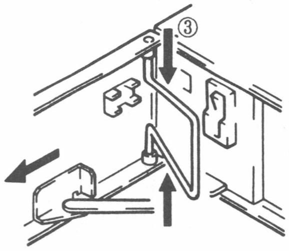
Loosen the four fixing screws and remove the top plate.



Fornt Panel

Push lower side of knob in the direction of arrow ①.
Move knob in the direction of arrrow ②.
Then pull up the shaft of the hinge portion and push it in the diection of ③ .
The front panel can be remove.

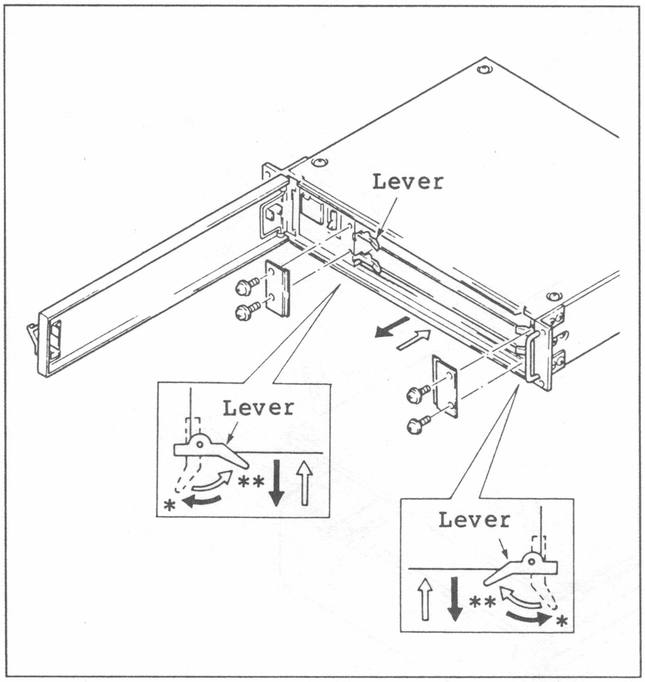




2-3. REMOVAL/INSTALL PROCEDURE

.Pushing in the direction of the *, pull out by the lever.
The card board can be removed.

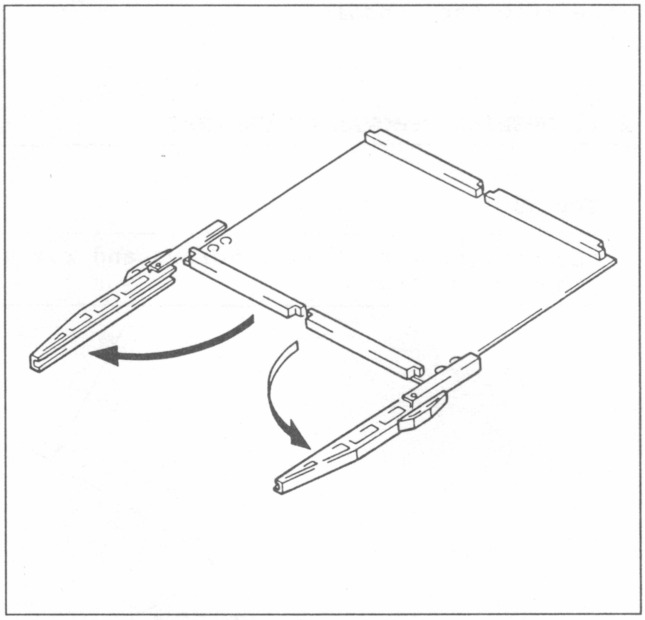
.Insert the board along with the lever in the direction of **, the card can be installed.


Lever
Lever
**
*
Lever
**
*

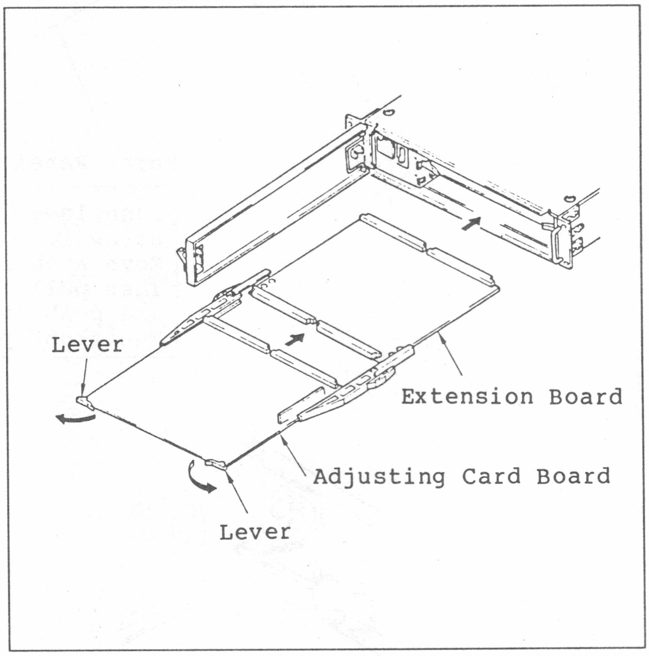
2-4. HOW TO MAINTENANCE

.Adjusting card board (ASW-18 board)

(1) Open the rail of the extension board.



(2) Pull out the lever out side and remove the board to be adjusted then attach the extension board.


Lever
Extension Board
Adjusting Card Board
Lever

2-5. CIRCUIT CONFIGURATION

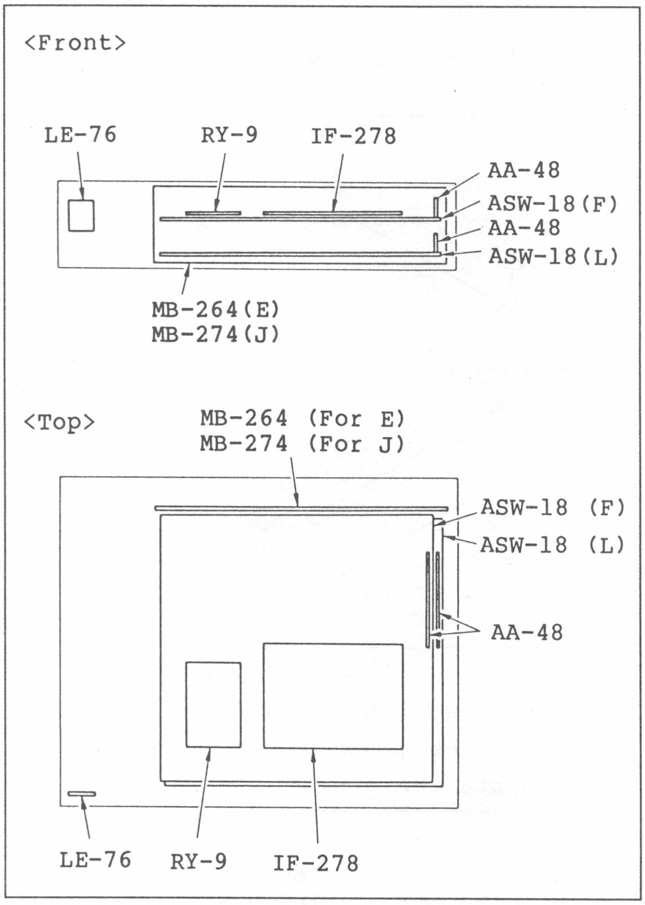
2-5-1. BVS-A1201

Board Name	Functions
ASW-18F	AUDIO SWITCH BOARD
ASW-18L	AUDIO SWITCH BOARD
IF-278	SERIAL INTERFACE BOARD
MB-264 (E) MB-274 (J)	MOTHER BOARD
AA-48	AUDIO AMPLIFIER BOARD
RY-9	TALLY BOARD
LE-76	LED BOARD

2-5-2. BKS-R1210

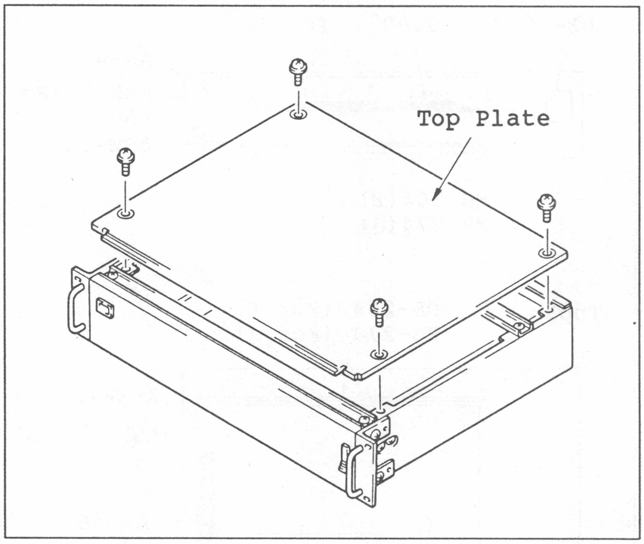
Board Name	Functions
SW-354	SWITCH BOARD

2-6. LAYOUT OF THE PRINT BOARD


<Front>
LE-76
RY-9
IF-278
AA-48
ASW-18(F)
AA-48
ASW-18(L)
MB-264(E)
MB-274(J)
<Top>
MB-264 (For E)
MB-274 (For J)
ASW-18 (F)
ASW-18 (L)
AA-48
LE-76
RY-9
IF-278

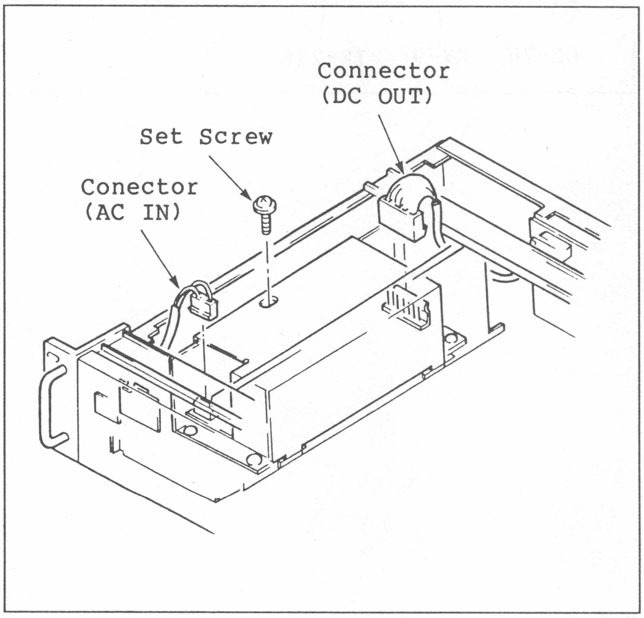
2-7. HOW TO REMOVE THE SWITCHING REQURATOR

(1) Remove the top plate.

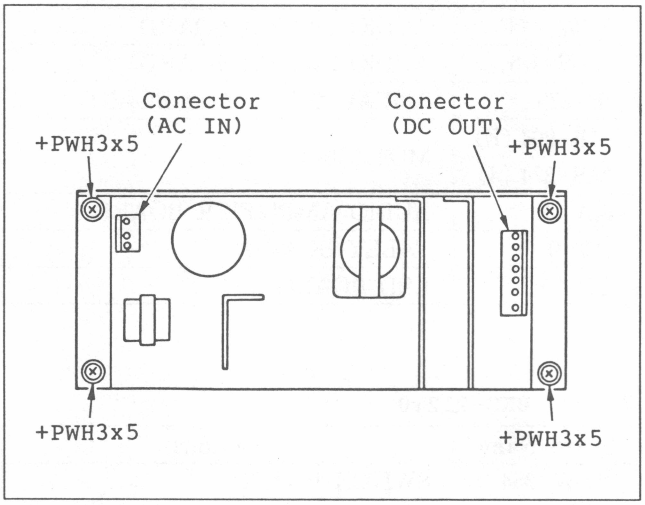


(2) Remove two connectors (front and back).

(3) Remove the screw of the shield case and separate it.



(4) Remove four screws (+PSW3x5) to the switching regulator.



2-8. NOTES ON REPAIR PARTS

(1) **Safety Related Components Warning**

Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation.
Replace these components with Sony parts whose part numbers appear in this manual or in service bulle tins and service manual supplements published by Sony.

(2) **Standardization of Parts**

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/ or engineering changes" or "standardization of genuine parts".
This manual's explded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

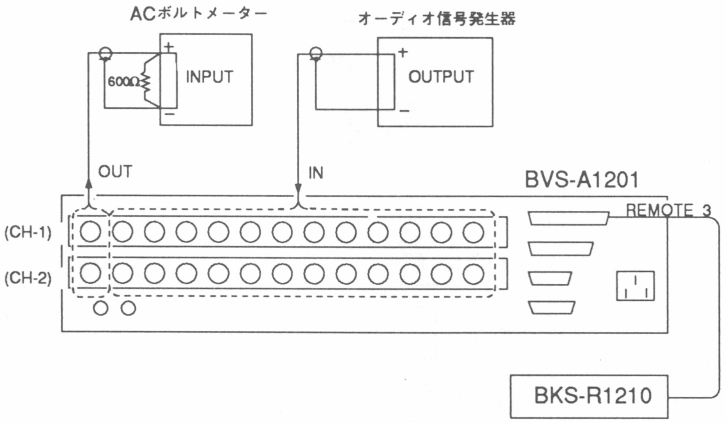
(3) **Stock of Parts**

Parts marked with "o" SP (supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked withe "o" will be processed, but allow for additional delivery time.

第 3 章
電気調整要項

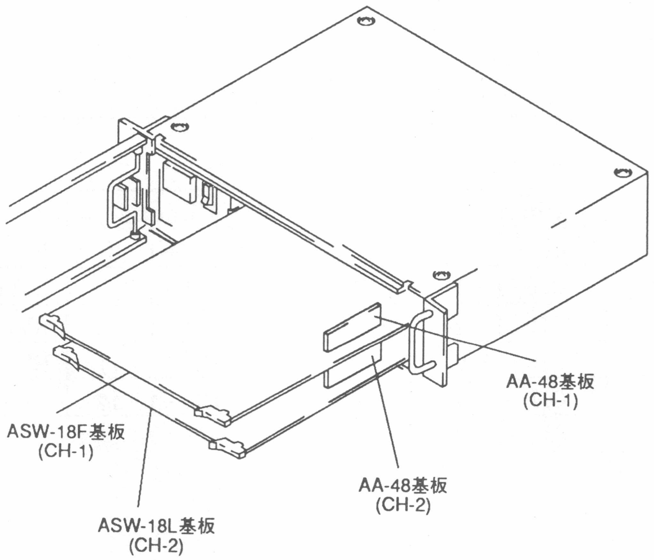
[使用機器]
- オーディオ信号発生器：テクトロニクス SG505 または同等品
- ACボルトメーター
- BKS-R1210又はBVS-V1201（前面コントロールパネル部分）

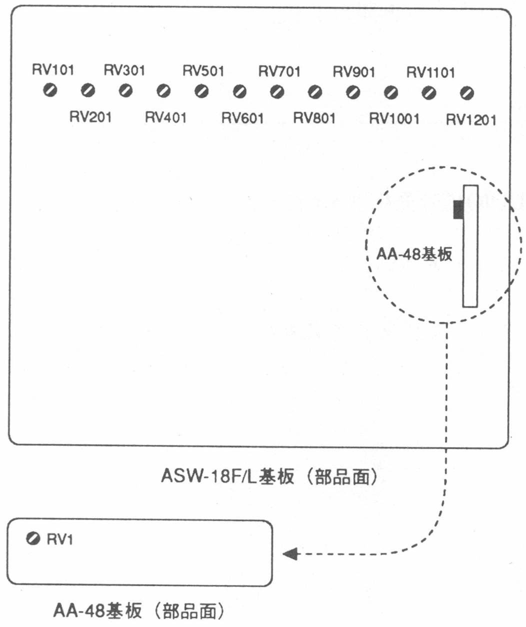
[接続]


ACボルトメーター
オーディオ信号発生器
+
600Ω
INPUT
−
+
OUTPUT
−
OUT
IN
BVS-A1201
REMOTE 3
(CH-1)
(CH-2)
BKS-R1210

- BKS-R1210
  BKS-R1210のリモートケーブルをBVS-A1201のREMOTE 3に接続します。
- オーディオ信号発生器
  オーディオ信号発生器のOUTPUT信号をBVS-A1201のINPUTコネクターに接続します。
- ACボルトメーター
  ACボルトメーターのINPUTコネクターにBVS-A1201のOUTPUTコネクターを接続します。

[調整基板配置図]

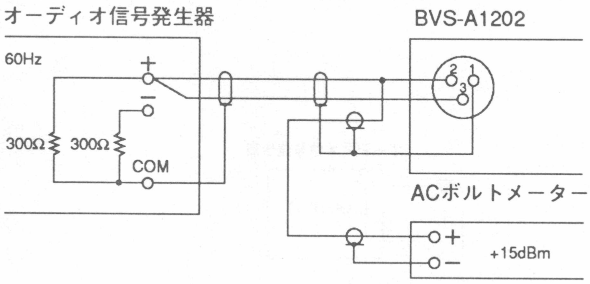

AA-48基板
(CH-1)
ASW-18F基板
(CH-1)
AA-48基板
(CH-2)
ASW-18L基板
(CH-2)


RV101
RV301
RV501
RV701
RV901
RV1101
RV201
RV401
RV601
RV801
RV1001
RV1201
AA-48基板
ASW-18F/L基板（部品面）
RV1
AA-48基板（部品面）

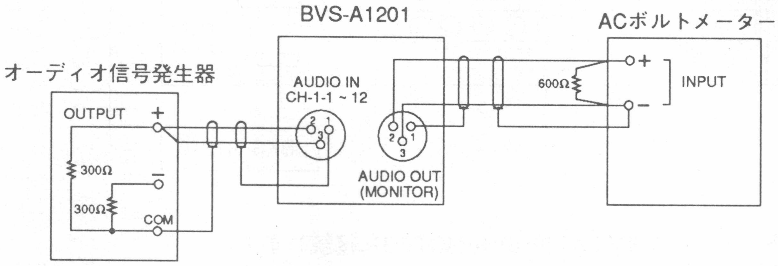
3-1. CMR (COMMON MODE REJECTION) 調整 / CH-1

[調整前の設定]

図のように接続しＡＣボトルメーターの値が+15dBm (4.36V) になる様に信号発生器の出力レベルを設定します。


オーディオ信号発生器
60Hz
+
−
300Ω
300Ω
COM
BVS-A1202
2
1
3
ACボルトメーター
+
−
+15dBm

[接続]


BVS-A1201
ACボルトメーター
オーディオ信号発生器
OUTPUT
+
−
300Ω
300Ω
COM
AUDIO IN
CH-1-1 ~ 12
2
1
3
AUDIO OUT
(MONITOR)
600Ω
+
−
INPUT

調整時の状態	規格	調整箇所
• AUDIO IN CH-1-1 にオーディオ信号発生器、AUDIO OUT CH-1-1にACボルトメーターを図のように接続します。 • BKS-R1210のINPUT 1（フロントパネル）を押します。	• ACボルトメーターの指示値を最少にします。 AUDIO IN入力 60Hz +15dBm AUDIO OUT出力 -75dBm以下	⊘ RV101/ASW-18F (CH-1 側)

AUDIO信号発生器をCH-1-2～CH-1-12に接続しBKS-R1210 にて、INPUT 2～12を順に押し上記と同様の調整を行って下さい。

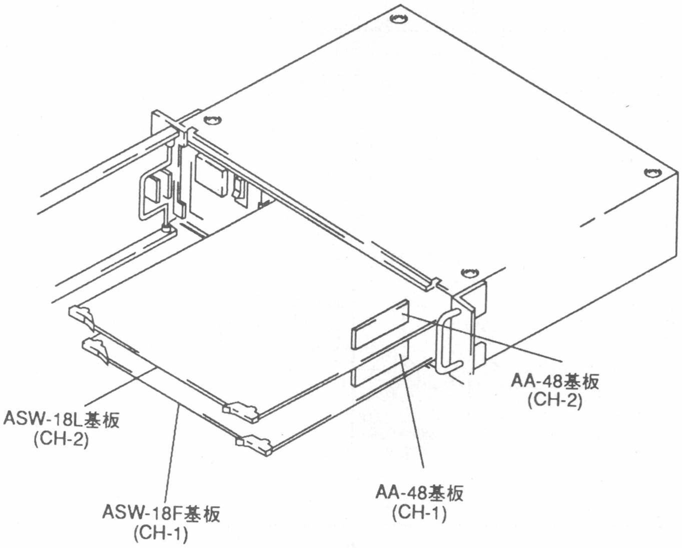
チャンネルに応じて各々のボリュームで調整して下さい。

Channel	ボリューム
CH−1−2	RV201
CH−1−3	RV301
CH−1−4	RV401
CH−1−5	RV501
CH−1−6	RV601
CH−1−7	RV701

Channel	ボリューム
CH−1−8	RV801
CH−1−9	RV901
CH−1−10	RV1001
CH−1−11	RV1101
CH−1−12	RV1201

3-2. CMR (COMMON MODE REJECTION) 調整 / CH-2

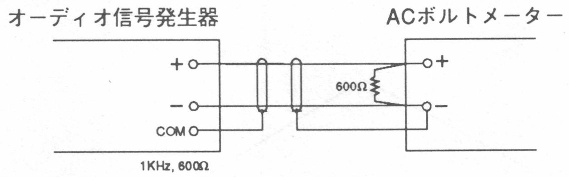
- 下図の様に、ASW-18F基板とASW-18L基板を差し替えて下さい。
- 3-1.と同様の方法にてCH-2側（ASW-18L基板）の調整を行って下さい。
（調整箇所： ASW-18L基板上のボリューム）


AA-48基板
(CH-2)
ASW-18L基板
(CH-2)
AA-48基板
(CH-1)
ASW-18F基板
(CH-1)

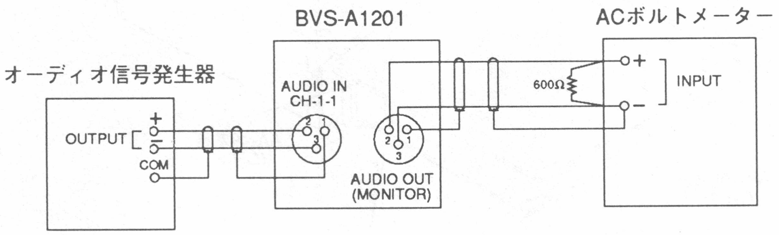
3-3. レベル調整 / CH-1

[調整前の設定]

図のように接続し、ACボルトメーターの出力が +4dBm (1.228V)になるように、オーディオ信号発生器の出力を設定します。


オーディオ信号発生器
ACボルトメーター
+
−
COM
600Ω
+
−
1KHz, 600Ω

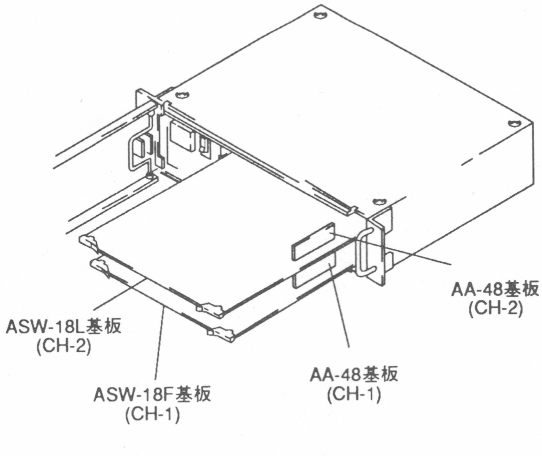
[接続]


BVS-A1201
ACボルトメーター
オーディオ信号発生器
OUTPUT
+
−
COM
AUDIO IN
CH-1-1
AUDIO OUT
(MONITOR)
600Ω
+
−
INPUT

調整時の状態	規格	調整箇所
• オーディオ信号発生器からのケーブルをAUDIO INのCH-1-1に、ACボルトメーターをAUDIO OUTに図のように接続します。 • BKS-R1210にてINPUT 1を押します。	ACボルトメーターの値が 4±0.1dBm (1.228±0.014V) になるように調整します。	⊘ RV1/AA-48 (CH1側)

3-4. レベル調整 / CH-2

- 右図の様にASW-18F基板とASW-18L基板を差しかえて下さい。
- 3-3.と同様の方法にてCH-2側の調整を行って下さい。

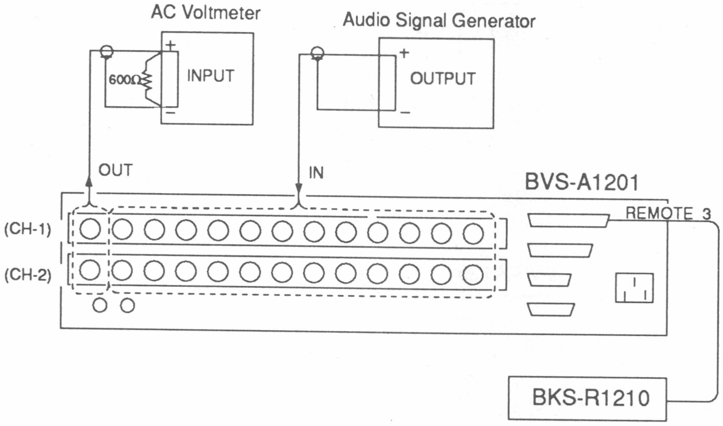

AA-48基板
(CH-2)
ASW-18L基板
(CH-2)
AA-48基板
(CH-1)
ASW-18F基板
(CH-1)

SECTION 3
ELECTRICAL ALIGNMENT

[Required Equipment]

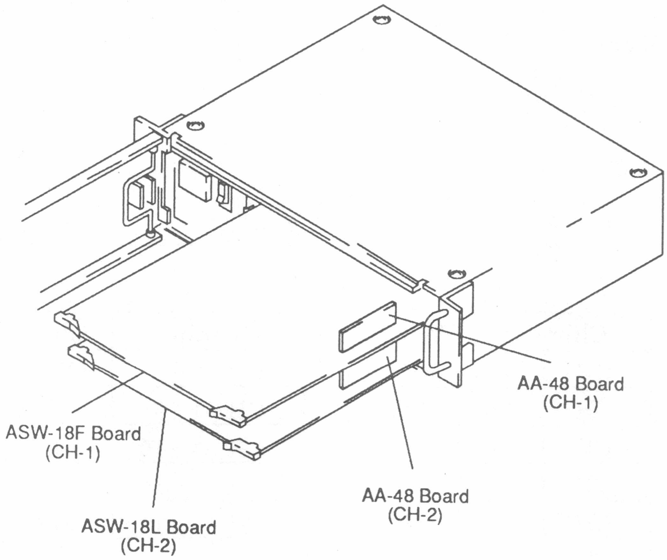
- Audio Signal Generator: TEKTRONIX SG505 or the equivalent
- AC Voltmeter
- BKS-R1210 : Control Panel of the BVS-V1201

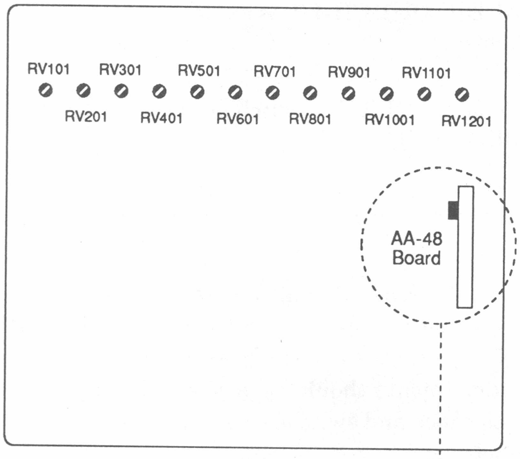
[Connection]


AC Voltmeter
Audio Signal Generator
+
600Ω
INPUT
−
+
OUTPUT
−
OUT
IN
BVS-A1201
REMOTE 3
(CH-1)
(CH-2)
BKS-R1210

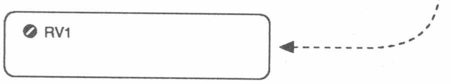
- BKS-R1210
  Connect the cable from the BKS-R1210 to the REMOTE 3 of the BVS-A1201.
- Audio Signal Generator
  Connect the OUTPUT Connector of the Audio Signal Generator to the INPUT Connector of the BVS-A1201.
- AC Voltmeter
  Connect the INPUT Connector of the AC Voltmeter to the OUTPUT Connector of the BVS-A1201.

[Layout of the adjustment print board]


AA-48 Board
(CH-1)
ASW-18F Board
(CH-1)
AA-48 Board
(CH-2)
ASW-18L Board
(CH-2)


RV101
RV301
RV501
RV701
RV901
RV1101
RV201
RV401
RV601
RV801
RV1001
RV1201
AA-48
Board

ASW-18F/L Board (component Side)

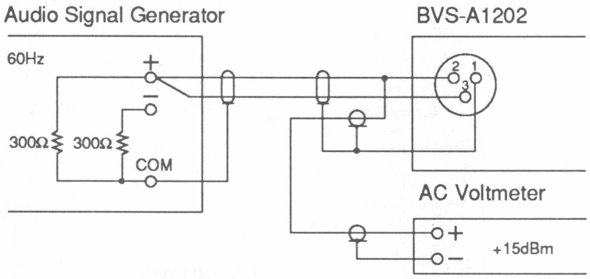


AA-48 Board (Component Side)

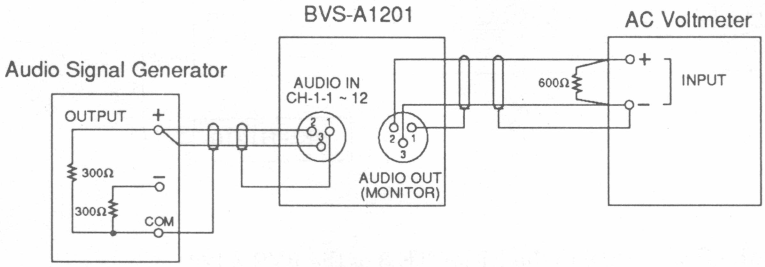
3-1. COMMON MODE REJECTION ADJUSTMENT / CH-1

[Setting to the adjustment before]

Make connection as shown below and determine the output level of signal generator so that the AC voltmeter reads +15 dBm (4.36V)


Audio Signal Generator
60Hz
+
−
300Ω
300Ω
COM
BVS-A1202
2
1
3
AC Voltmeter
+
−
+15dBm

[Connection]


BVS-A1201
Audio Signal Generator
OUTPUT
+
300Ω
−
300Ω
COM
AUDIO IN
CH-1-1 ~ 12
2
1
3
AUDIO OUT
(MONITOR)
AC Voltmeter
600Ω
+
−
INPUT

Machine conditions for adjustment	Specification	Adjustment
• Connect the Audio Signal Generator output to AUDIO IN CH-1-1. • Connect the AC Voltmeter to AUDIO OUT CH-1-1 as shown above. • Push the INPUT 1 switch of the BKS-R1210.	• Minimize the level of the AC Voltmeter. AUDIO INPUT 60Hz +15dBm AUDIO OUTPUT under–75dBm	⊘ RV101/ASW-18F (CH-1 Side)

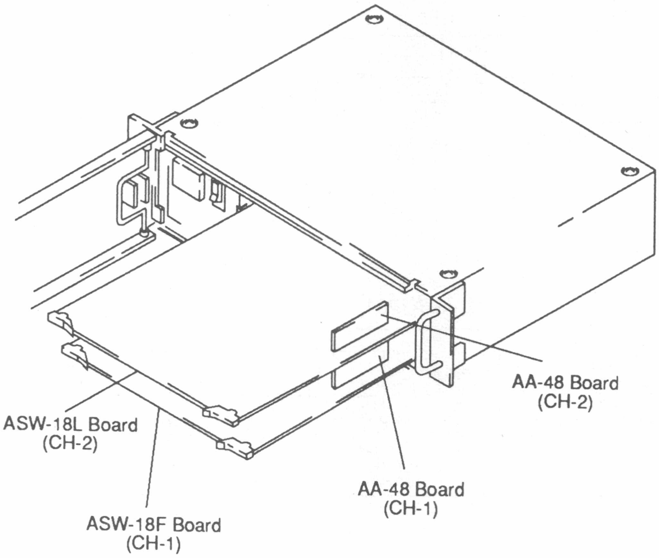
Connect the Audio Signal Generator CH-1-2 through CH-1-12 and change the 2 to 12 buttons of the BKS-R1210 perform the above adjustments.
The adjustments should be performed using the control knobs and switches corresponding to each channels.

Channel	Volume
CH−1−2	RV201
CH−1−3	RV301
CH−1−4	RV401
CH−1−5	RV501
CH−1−6	RV601
CH−1−7	RV701

Channel	Volume
CH−1−8	RV801
CH−1−9	RV901
CH−1−10	RV1001
CH−1−11	RV1101
CH−1−12	RV1201

3-2. COMMON MODE REJECTION ADJUSTMENT / CH-2

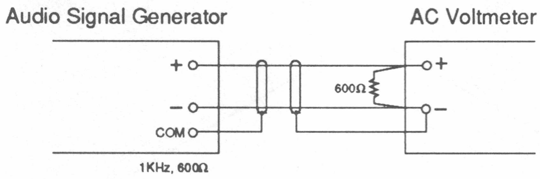
- Exchange the ASW-18F PC board and the ASW-18L PC board as shown in the figure below.
- Perform the adjustments for CH-2 as the same in Sec. 3-1.
  (Adjustment : ASW-18L)


AA-48 Board
(CH-2)
ASW-18L Board
(CH-2)
AA-48 Board
(CH-1)
ASW-18F Board
(CH-1)

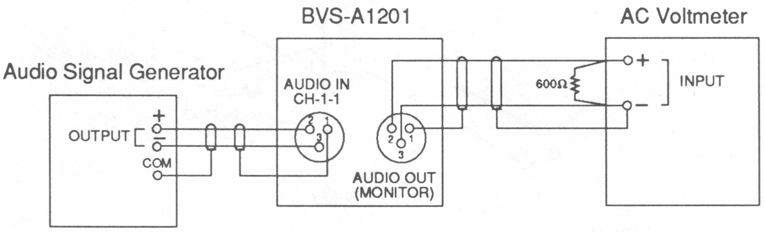
3-3. LEVEL ADJUSTMENT / CH-1

[Setting to the adjustment before]

Connect as shown in the figure.
Adjust the output of the Audio Signal Generator so that the output of the AC Voltmeter is +4dBm (1.228V).


Audio Signal Generator
AC Voltmeter
+
−
COM
600Ω
+
−
1KHz, 600Ω

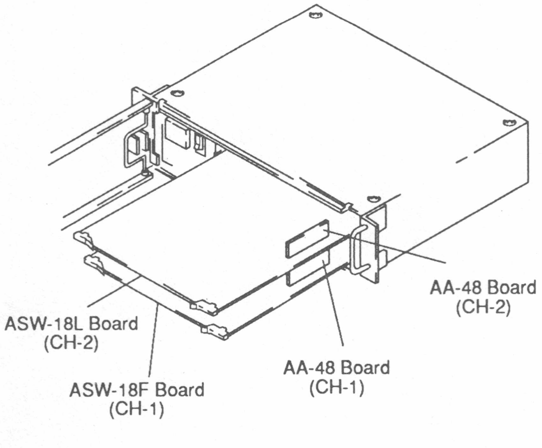
[Connection]


BVS-A1201
AC Voltmeter
Audio Signal Generator
OUTPUT
+
−
COM
AUDIO IN
CH-1-1
AUDIO OUT
(MONITOR)
600Ω
+
−
INPUT

Machine conditions for adjustment	Specification	Adjustment
• Connect the Audio Signal Generator to AUDIO IN CH-1-1. • Connect the AC Voltmeter to AUDIO OUT CH-1-1 as shown above. • Push the INPUT 1 switch of the BKS-R1210.	Adjust the output level control so that the output of the AC Voltmeter is 4±0.1dBm (1.228 ± 0.014V).	⊘ RV1/AA-48 (CH-1 side)

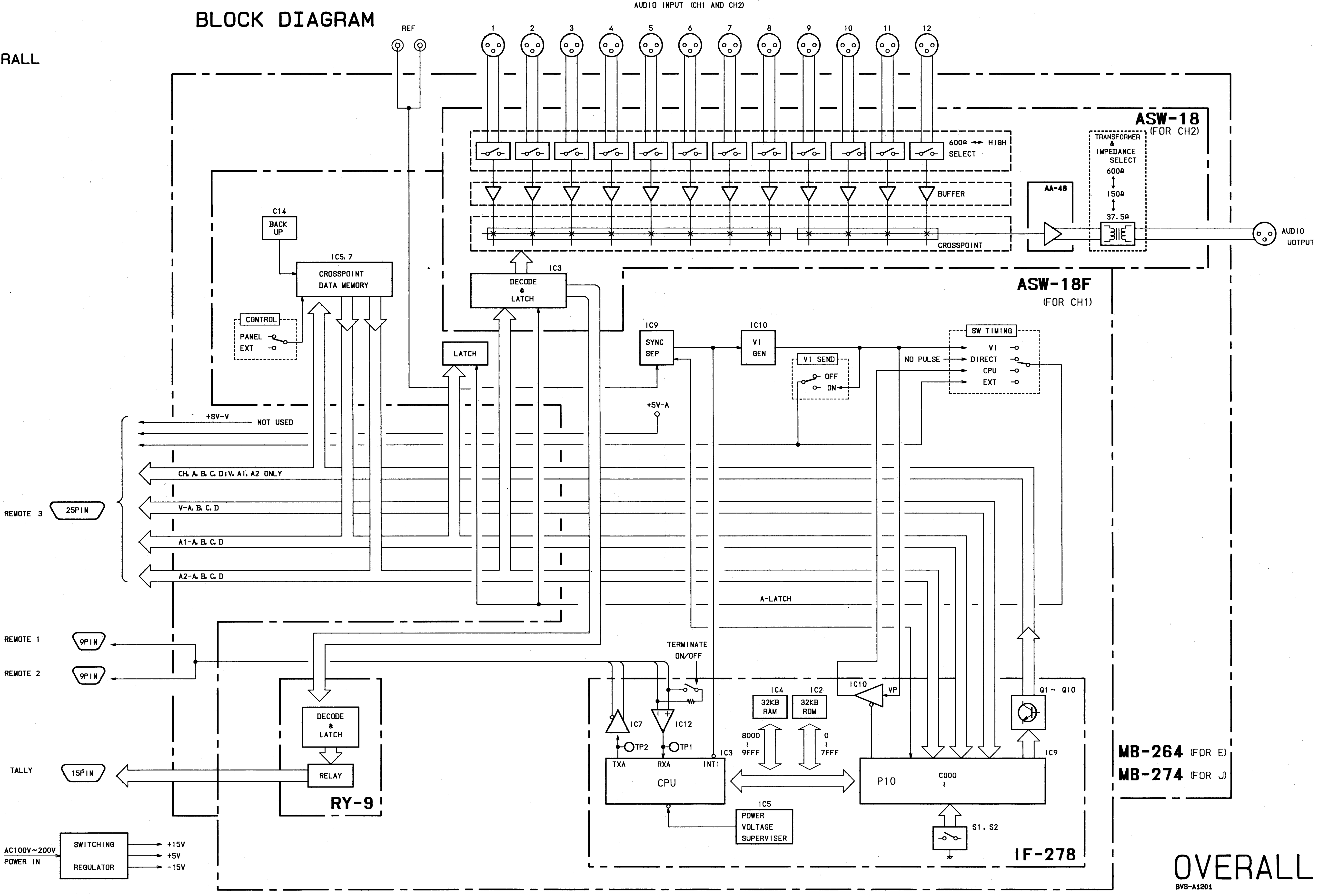
3-4. LEVEL ADJUSTMENT / CH-2

- Exchange the ASW-18F PC board and the ASW-18L PC board as shown in the figure at right.
- Perform the adjustment for CH-2 as the same in Sec 3-3.


AA-48 Board
(CH-2)
ASW-18L Board
(CH-2)
AA-48 Board
(CH-1)
ASW-18F Board
(CH-1)

SECTION 4
BLOCK DIAGRAM

OVERALL


AUDIO INPUT (CH1 AND CH2)
REF
1
2
3
4
5
6
7
8
9
10
11
12
ASW-18
(FOR CH2)
600Ω ↔ HIGH
SELECT
BUFFER
CROSSPOINT
AA-48
TRANSFORMER
&
IMPEDANCE
SELECT
600Ω
150Ω
37.5Ω
AUDIO
UOTPUT
C14
BACK
UP
IC5, 7
CROSSPOINT
DATA MEMORY
CONTROL
PANEL
EXT
IC3
DECODE
&
LATCH
LATCH
ASW-18F
(FOR CH1)
IC9
SYNC
SEP
IC10
VI
GEN
VI SEND
OFF
ON
SW TIMING
NO PULSE
VI
DIRECT
CPU
EXT
+5V-A
+5V-V
NOT USED
CH, A, B, C, D:V, A1, A2 ONLY
V-A, B, C, D
A1-A, B, C, D
A2-A, B, C, D
REMOTE 3
25PIN
A-LATCH
REMOTE 1
9PIN
REMOTE 2
9PIN
TERMINATE
ON/OFF
DECODE
&
LATCH
RELAY
RY-9
TALLY
15PIN
IC7
IC12
TP2
TP1
TXA
RXA
INT1
IC3
CPU
IC4
32KB
RAM
IC2
32KB
ROM
8000
~
9FFF
0
~
7FFF
IC10
VP
Q1 ~ Q10
IC9
P10
C000
~
IC5
POWER
VOLTAGE
SUPERVISER
S1, S2
IF-278
MB-264 (FOR E)
MB-274 (FOR J)
AC100V~200V
POWER IN
SWITCHING
REGULATOR
+15V
+5V
-15V

OVERALL

BVS-A1201

SECTION 5
SEMICONDUCTOR ELECTRODES

ここに記載されているIC，トランジスタ，ダイオードは，それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。（互換性のない型名が併記されている事もあります。）部品の交換をする時は，SPARE PARTSの章を参照して下さい。

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

IC PAGE

AM26LS30PC 5-1
AM26LS32PC 5-1

CXD1095Q 5-2
CXK5864BP-10L 5-3

HD64B180R0P 5-4

LM1881M 5-5

MBM27C256A-20CZ .. 5-5

NE5534P 5-5
NJM4565MD 5-5

SN74HC00N 5-5
SN74HC139N 5-7
SN74HC14NS 5-5
SN74HC32N 5-5
SN74HC74N 5-6
SN74HC75NS 5-6
SN74HC541N 5-6
SN74HC4514NT 5-6
SN74HC4515NT 5-6

TC40175BF 5-7
TC4023BF 5-7
TC4049BF 5-7
TC74HC123F 5-7
TC74HC139P 5-7
TD62306P 5-7
TL7705CP-B 5-7

TRANSISTOR PAGE

2SA812 5-8
2SB1115A 5-8
2SC1623 5-8
2SC2785-F 5-8
2SC3545 5-8
2SD1615A 5-8

DTC144WS 5-8

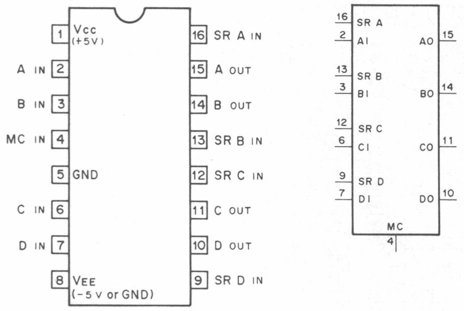
DIODE PAGE

1S2835-T1 5-8
1S2837-T1 5-8
1SS119 5-8
1SS123 5-8

TLY123 5-8

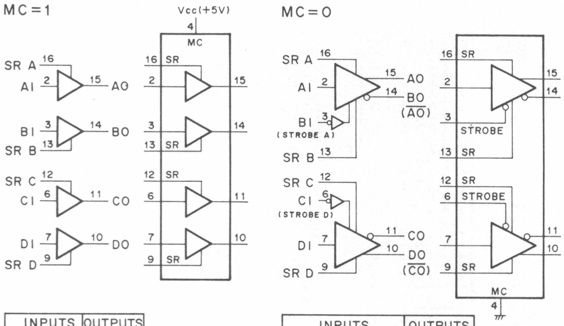
IC

AM26LS30PC (ADVANCED MICRO DEVICES)
LINE DRIVER
— TOP VIEW —



1 Vcc (+5V)
A IN 2
B IN 3
MC IN 4
5 GND
C IN 6
D IN 7
8 VEE (−5 v or GND)
16 SR A IN
15 A OUT
14 B OUT
13 SR B IN
12 SR C IN
11 C OUT
10 D OUT
9 SR D IN
SR A
AI
AO
SR B
BI
BO
SR C
CI
CO
SR D
DI
DO
MC

MC ; MODE CONTROL
SR ; SLEW RATE CONTROL



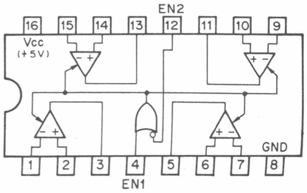
MC=1
Vcc(+5V)
MC
SR A
AI
AO
BI
BO
SR B
SR C
CI
CO
DI
DO
SR D
MC=0
(STROBE A)
(STROBE D)
STROBE
SR

INPUTS		OUTPUTS
MC	A TO D	A TO D
1	0	0
1	1	1

INPUTS			OUTPUTS	
MC	STROBE	A & D	A & D	B & C
0	0	0	0	1
0	0	1	1	0
0	1	X	HI-Z	HI-Z

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE

AM26LS32PC (ADVANCED MICRO DEVICES)
HIGH SPEED DIFFERENTIAL LINE RECEIVER
— TOP VIEW —



EN2
16 15 14 13 12 11 10 9
Vcc (+5V)
GND
1 2 3 4 5 6 7 8
EN1

FUNCTION TABLE

EN2	EN1	OUTPUT
0	0	ENABLE
0	1	ENABLE
1	0	HI-Z
1	1	ENABLE

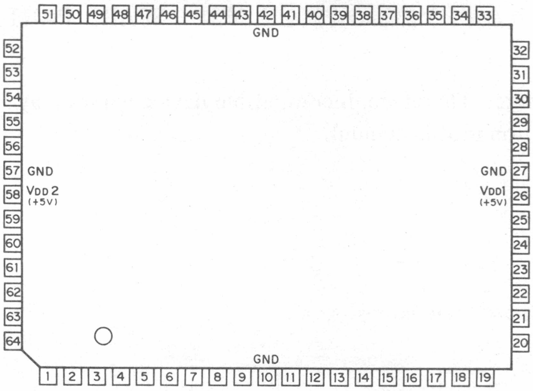
0; LOW LEVEL
1; HIGH LEVEL
HI-Z ; HIGH IMPEDANCE

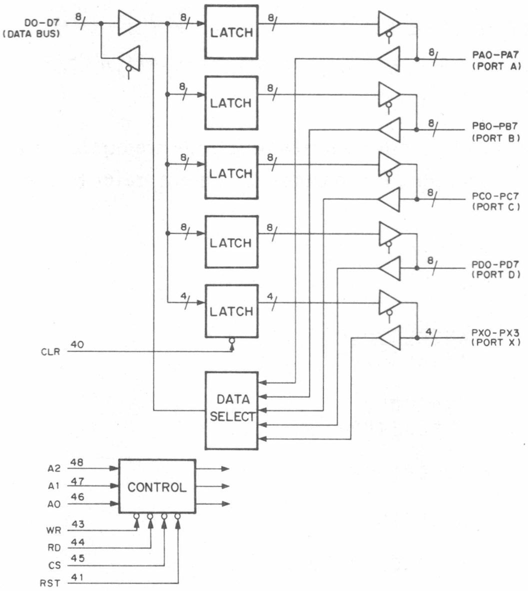
	SENSE	INPUT VOLT
LS32	±200mV	±7V
LS33	±500mV	±15V

等価回路はICメーカーのData Bookに従いました。

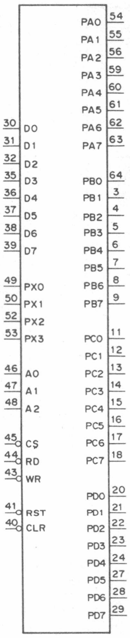
The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

CXD1095Q (SONY) FLAT PACKAGE
C-MOS I/O PORT EXPANDER
— TOP VIEW —


51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
GND
52
53
54
55
56
57 GND
58 VDD 2 (+5V)
59
60
61
62
63
64
32
31
30
29
28
GND 27
VDD1 (+5V) 26
25
24
23
22
21
20
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19


D0–D7
(DATA BUS)
8
LATCH
8
PA0–PA7
(PORT A)
PB0–PB7
(PORT B)
PC0–PC7
(PORT C)
PD0–PD7
(PORT D)
4
PX0–PX3
(PORT X)
CLR
40
DATA
SELECT
A2 48
A1 47
A0 46
CONTROL
WR 43
RD 44
CS 45
RST 41

PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	○	○	PC6	33			NC	49	○	○	PX0
2			NC	18	○	○	PC7	34			NC	50	○	○	PX1
3	○	○	PB1	19			NC	35	○	○	D3	51			NC
4	○	○	PB2	20	○	○	PD0	36	○	○	D4	52	○	○	PX2
5	○	○	PB3	21	○	○	PD1	37	○	○	D5	53	○	○	PX3
6	○	○	PB4	22	○	○	PD2	38	○	○	D6	54	○	○	PA0
7	○	○	PB5	23	○	○	PD3	39	○	○	D7	55	○	○	PA1
8	○	○	PB6	24	○	○	PD4	40	○		CLR	56	○	○	PA2
9	○	○	PB7	25			GND	41	○		RST	57			GND
10			GND	26	○		VDD (+5V)	42			GND	58	○		VDD (+5V)
11	○	○	PC0	27	○	○	PD5	43	○		WR	59	○	○	PA3
12	○	○	PC1	28	○	○	PD6	44	○		RD	60	○	○	PA4
13	○	○	PC2	29	○	○	PD7	45	○		CS	61	○	○	PA5
14	○	○	PC3	30	○	○	D0	46	○		A0	62	○	○	PA6
15	○	○	PC4	31	○	○	D1	47	○		A1	63	○	○	PA7
16	○	○	PC5	32	○	○	D2	48	○		A2	64	○	○	PB0


30 D0
31 D1
32 D2
35 D3
36 D4
37 D5
38 D6
39 D7
49 PX0
50 PX1
52 PX2
53 PX3
46 A0
47 A1
48 A2
45 CS
44 RD
43 WR
41 RST
40 CLR
PA0 54
PA1 55
PA2 56
PA3 59
PA4 60
PA5 61
PA6 62
PA7 63
PB0 64
PB1 3
PB2 4
PB3 5
PB4 6
PB5 7
PB6 8
PB7 9
PC0 11
PC1 12
PC2 13
PC3 14
PC4 15
PC5 16
PC6 17
PC7 18
PD0 20
PD1 21
PD2 22
PD3 23
PD4 24
PD5 27
PD6 28
PD7 29

CS	RD	WR	A2	A1	A0	MODE
0	0	1	0	0	0	PORT A → DATA BUS
0	0	1	0	0	1	PORT B → DATA BUS
0	0	1	0	1	0	PORT C → DATA BUS
0	0	1	0	1	1	PORT D → DATA BUS
0	0	1	1	0	0	PORT X → DATA BUS
0	0	1	1	0	1	——
0	0	1	1	1	0	——
0	0	1	1	1	1	——
0	1	0	0	0	0	DATA BUS → PORT A
0	1	0	0	0	1	DATA BUS → PORT B
0	1	0	0	1	0	DATA BUS → PORT C
0	1	0	0	1	1	DATA BUS → PORT D
0	1	0	1	0	0	DATA BUS → PORT X
0	1	0	1	0	1	——
0	1	0	1	1	0	DATA BUS → CTL REG.1
0	1	0	1	1	1	DATA BUS → CTL REG.2
1	X	X	X	X	X	DATA BUS ; HI-Z

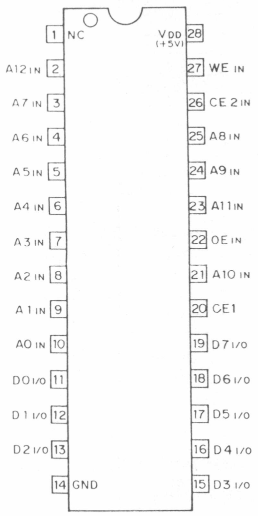
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z , HIGH IMPEDANCE

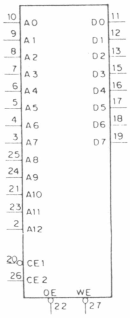
D0–D7 ; DATA BUS INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
RD ; READ STROBE INPUT
WR ; WRITE STROBE INPUT
A0–A2 ; ADDRESS INPUT
RST ; RESET INPUT
CLR ; CLEAR INPUT
PA0–PA7 ; PORT A INPUTS/OUTPUTS
PB0–PB7 ; PORT B INPUTS/OUTPUTS
PC0–PC7 ; PORT C INPUTS/OUTPUTS
PD0–PD7 ; PORT D INPUTS/OUTPUTS
PX0–PX3 ; PORT X INPUTS/OUTPUTS

CXK5864BP-10L (SONY) (ACCESS TIME = 100nS)

C-MOS 64K (8Kx8-BIT) STATIC RAM

– TOP VIEW –


1 NC
A12 IN 2
A7 IN 3
A6 IN 4
A5 IN 5
A4 IN 6
A3 IN 7
A2 IN 8
A1 IN 9
A0 IN 10
D0 I/O 11
D1 I/O 12
D2 I/O 13
14 GND
VDD (+5V) 28
27 WE IN
26 CE 2 IN
25 A8 IN
24 A9 IN
23 A11 IN
22 OE IN
21 A10 IN
20 CE1
19 D7 I/O
18 D6 I/O
17 D5 I/O
16 D4 I/O
15 D3 I/O

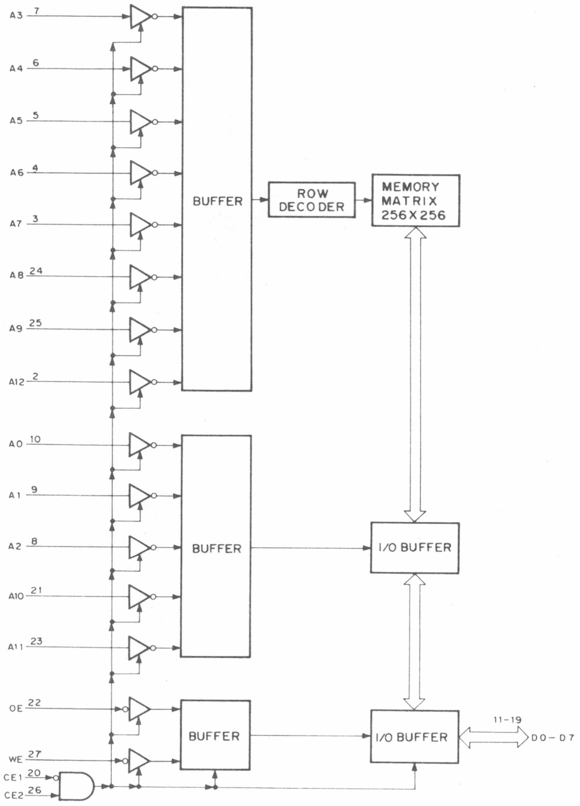

10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
20 CE1
26 CE2
D0 11
D1 12
D2 13
D3 15
D4 16
D5 17
D6 18
D7 19
OE 22
WE 27

A0–A12 ; ADDRESS INPUTS
CE1, CE2 ; CHIP ENABLE 1, 2 INPUTS
D0–D7 ; DATA INPUTS / OUTPUTS
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

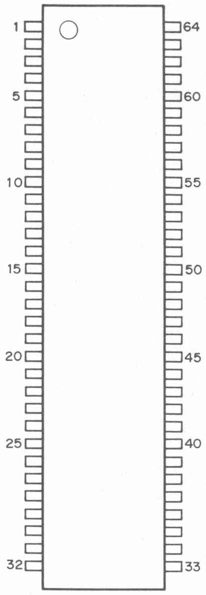
MODE SELECTION

CONTROL INPUTS				MODE
CE1	CE2	OE	WE	
1	X	X	X	NO CHANGE
X	0	X	X	NO CHANGE
0	1	1	1	DISABLE OUTPUT
0	1	0	1	READ
0	1	X	0	WRITE

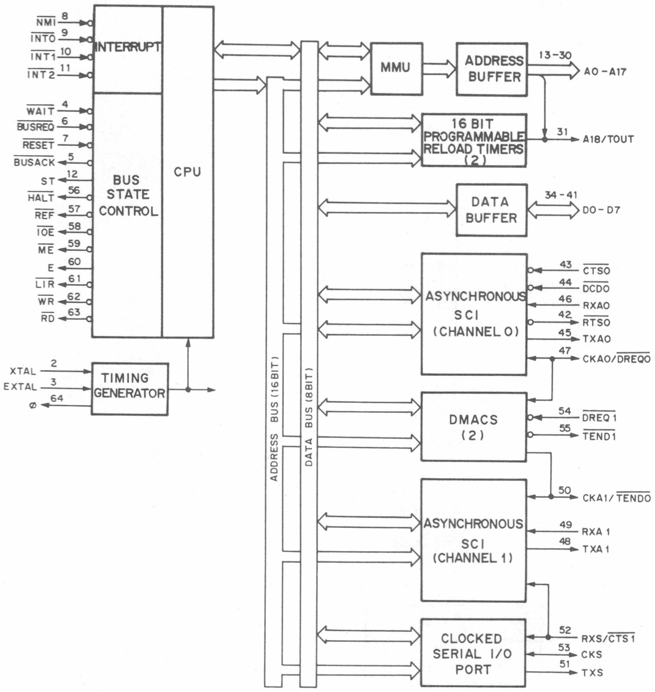
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

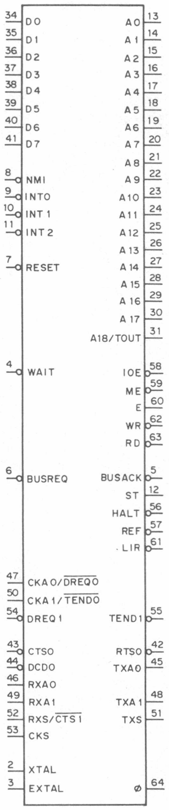

A3 7
A4 6
A5 5
A6 4
A7 3
A8 24
A9 25
A12 2
A0 10
A1 9
A2 8
A10 21
A11 23
OE 22
WE 27
CE1 20
CE2 26
BUFFER
ROW DECODER
MEMORY MATRIX 256X256
BUFFER
I/O BUFFER
BUFFER
I/O BUFFER
11–19
D0 – D7

HD64B180R0P (HITACHI) (6MHz)
C-MOS 8-BIT MICROPROCESSOR
— TOP VIEW —


1
5
10
15
20
25
32
64
60
55
50
45
40
33

PIN NO	IN	OUT	SYMBOL	PIN NO	IN	OUT	SYMBOL
1			Vss	33			Vss
2	○		XTAL	34	○	○	D0
3	○		EXTAL	35	○	○	D1
4	○		$\overline{\text{WAIT}}$	36	○	○	D2
5		○	$\overline{\text{BUSACK}}$	37	○	○	D3
6	○		$\overline{\text{BUSREQ}}$	38	○	○	D4
7	○		$\overline{\text{RESET}}$	39	○	○	D5
8	○		$\overline{\text{NMI}}$	40	○	○	D6
9	○		$\overline{\text{INT0}}$	41	○	○	D7
10	○		$\overline{\text{INT1}}$	42		○	$\overline{\text{RTS0}}$
11	○		$\overline{\text{INT2}}$	43	○		$\overline{\text{CTS0}}$
12		○	ST	44	○		$\overline{\text{DCD0}}$
13		○	A0	45		○	TXA0
14		○	A1	46	○		RXA0
15		○	A2	47	○	○	CKA0/$\overline{\text{DREQ0}}$
16		○	A3	48		○	TXA1
17		○	A4	49	○		RXA1
18		○	A5	50	○	○	CKA1/$\overline{\text{TEND0}}$
19		○	A6	51		○	TXS
20		○	A7	52	○	○	RXS/$\overline{\text{CTS1}}$
21		○	A8	53	○	○	CKS
22		○	A9	54	○		$\overline{\text{DREQ1}}$
23		○	A10	55		○	$\overline{\text{TEND1}}$
24		○	A11	56		○	$\overline{\text{HALT}}$
25		○	A12	57		○	$\overline{\text{REF}}$
26		○	A13	58		○	$\overline{\text{IOE}}$
27		○	A14	59		○	$\overline{\text{ME}}$
28		○	A15	60		○	E
29		○	A16	61		○	$\overline{\text{LIR}}$
30		○	A17	62		○	$\overline{\text{WR}}$
31		○	A18/TOUT	63		○	$\overline{\text{RD}}$
32			VDD	64		○	ϕ

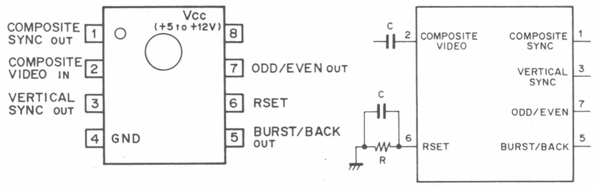

NMI 8
INT0 9
INT1 10
INT2 11
WAIT 4
BUSREQ 6
RESET 7
BUSACK 5
ST 12
HALT 56
REF 57
IOE 58
ME 59
E 60
LIR 61
WR 62
RD 63
INTERRUPT
BUS STATE CONTROL
CPU
XTAL 2
EXTAL 3
ϕ 64
TIMING GENERATOR
ADDRESS BUS (16 BIT)
DATA BUS (8 BIT)
MMU
ADDRESS BUFFER
13-30
A0-A17
16 BIT PROGRAMMABLE RELOAD TIMERS (2)
31
A18/TOUT
DATA BUFFER
34-41
D0-D7
ASYNCHRONOUS SCI (CHANNEL 0)
43 CTS0
44 DCD0
46 RXA0
42 RTS0
45 TXA0
47 CKA0/DREQ0
DMACS (2)
54 DREQ1
55 TEND1
50 CKA1/TEND0
ASYNCHRONOUS SCI (CHANNEL 1)
49 RXA1
48 TXA1
CLOCKED SERIAL I/O PORT
52 RXS/CTS1
53 CKS
51 TXS


34 D0
35 D1
36 D2
37 D3
38 D4
39 D5
40 D6
41 D7
8 NMI
9 INT0
10 INT1
11 INT2
7 RESET
4 WAIT
6 BUSREQ
47 CKA0/DREQ0
50 CKA1/TEND0
54 DREQ1
43 CTS0
44 DCD0
46 RXA0
49 RXA1
52 RXS/CTS1
53 CKS
2 XTAL
3 EXTAL
A0 13
A1 14
A2 15
A3 16
A4 17
A5 18
A6 19
A7 20
A8 21
A9 22
A10 23
A11 24
A12 25
A13 26
A14 27
A15 28
A16 29
A17 30
A18/TOUT 31
IOE 58
ME 59
E 60
WR 62
RD 63
BUSACK 5
ST 12
HALT 56
REF 57
LIR 61
TEND1 55
RTS0 42
TXA0 45
TXA1 48
TXS 51
ϕ 64

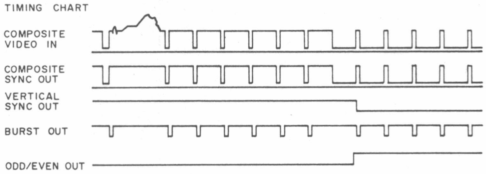
A0-A18; ADDRESS BUS (3-STATE)
BUSACK; BUS ACKNOWLEDGE
BUSREQ; BUS REQUEST
CKA0,1; CLOCK FOR ASYNCHRONOUS SCI CHANNEL 0,1
CKS; CLOCK FOR SERIAL I/O PORT
CTS0,1; CLEAR TO SEND FOR ASYNCHRONOUS SCI CHANNEL 0,1
D0-D7; DATA BUS
DCD0; DATA CARRIER DETECT FOR ASYNCHRONOUS SCI CHANNEL 0
DREQ0,1; DMA REQUEST FOR CHANNEL 0,1
E; ENABLE
EXTAL; EXTERNAL CLOCK
INT0-2; INTERRUPT 0-2
IOE; I/O ENABLE (3-STATE)
LIR; LOAD INSTRUCTION REGISTER
ME; MEMORY ENABLE(3-STATE)
NMI; NON-MASKABLE INTERRUPT
RD; READ
REF; REFRESH
RTS0; REQUEST TO SEND FOR ASYNCHRONOUS SCI CHANNEL 0
RXA0,1; RECEIVE DATA FOR ASYNCHRONOUS SCI CHANNEL 0,1
RXS; RECEIVE DATA FOR SERIAL I/O PORT
ST; STATUS
TEND0,1; TRANSFER END FOR CHANNEL 0,1
TOUT; TIMER OUT
TXA0,1; TRANSFER DATA FOR ASYNCHRONOUS SCI CHANNEL 0,1
TXS; TRANSFER DATA FOR SERIAL I/O PORT
WR; WRITE(3-STATE)
ϕ; SYSTEM CLOCK

LM1881M (NS) FLAT PACKAGE

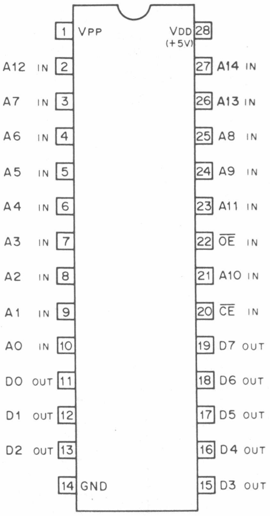
VIDEO SYNC SEPARATOR
– TOP VIEW –

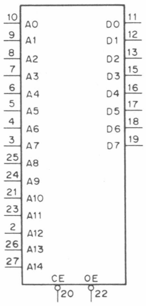

COMPOSITE SYNC OUT 1
COMPOSITE VIDEO IN 2
VERTICAL SYNC OUT 3
4 GND
Vcc (+5 to +12V) 8
7 ODD/EVEN OUT
6 RSET
5 BURST/BACK OUT
C
2 COMPOSITE VIDEO
COMPOSITE SYNC 1
VERTICAL SYNC 3
ODD/EVEN 7
6 RSET
BURST/BACK 5
R

TIMING CHART

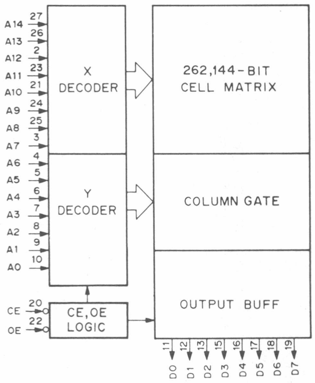


MBM27C256A-20CZ (FUJITSU) (ACCESS TIME=200nS)
C-MOS 256K (32Kx8)-BIT ERASABLE PROM WITH 3-STATE OUTPUTS
– TOP VIEW –


1 VPP
VDD (+5V) 28
A12 IN 2
27 A14 IN
A7 IN 3
26 A13 IN
A6 IN 4
25 A8 IN
A5 IN 5
24 A9 IN
A4 IN 6
23 A11 IN
A3 IN 7
22 OE IN
A2 IN 8
21 A10 IN
A1 IN 9
20 CE IN
A0 IN 10
19 D7 OUT
D0 OUT 11
18 D6 OUT
D1 OUT 12
17 D5 OUT
D2 OUT 13
16 D4 OUT
14 GND
15 D3 OUT


A0 … A14
D0 … D7
CE 20
OE 22

A0 – A14 : ADDRESS INPUT
CE : CHIP ENABLE INPUT
D0 – D7 : DATA OUTPUT
OE : OUTPUT ENABLE INPUT
VPP : PROGRAM POWER SUPPLY


X DECODER
262,144-BIT CELL MATRIX
Y DECODER
COLUMN GATE
OUTPUT BUFF
CE,OE LOGIC
CE 20
OE 22
D0 D1 D2 D3 D4 D5 D6 D7

An	$\overline{CE}$	$\overline{OE}$	VDD	Vpp	Dn	FUNCTION
An	0	0	+5V	+5V	D OUT	READ
An	0	1	+5V	+5V	HI-Z	OUTPUT DISABLE
X	1	X	+5V	+5V	HI-Z	STANDBY
An	0	1	+6V	+12.5V	D IN	PGM
An	1	0	+6V	+12.5V	D OUT	PGM VERIFY(1)
An	0	0	+6V	+12.5V	D OUT	PGM VERIFY(2)
X	1	1	+6V	+12.5V	HI-Z	PGM INH
A0	0	0	+5V	+5V	DEVICE CODE	ELECTRONIC SIGNATURE*

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE
HI-Z: HIGH IMPEDANCE

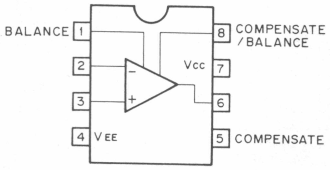
*SEE FOLLOWING DESCRIPTION.

ELECTRONIC SIGNATURE FOR P ROM WRITER
ADDRESS SETTINGS IN READ MODE

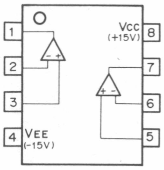
A1 – A8	A9	A10 – A13	A14, Vpp
0	12V	0	1

	A0	CODE DATA								
		D7	D6	D5	D4	D3	D2	D1	D0	
MAKER CODE	0	0	0	0	0	0	1	0	0	04H
DEVICE CODE	1	0	1	1	0	0	0	1	0	62H

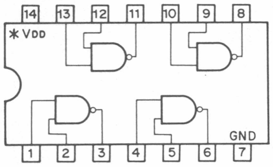
NE5534P (TI)
OPERATIONAL AMPLIFIER
— TOP VIEW —


BALANCE 1
2
3
4 VEE
8 COMPENSATE /BALANCE
Vcc 7
6
5 COMPENSATE

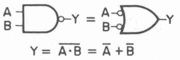
NJM4565MD (JRC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIER
– TOP VIEW –


1
2
3
4 VEE (-15V)
Vcc (+15V) 8
7
6
5

SN74HC00N (TI)
C-MOS 2-INPUT NAND GATE
– TOP VIEW –


14 13 12 11 10 9 8
*VDD
GND
1 2 3 4 5 6 7

*VDD AC, HC; +2 to +6V
HCT; +5V

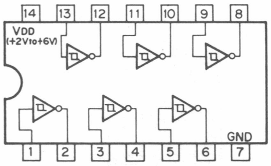


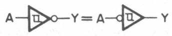
Y = $\overline{A \cdot B}$ = $\overline{A}+\overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

SN74HC14NS (TI)
C-MOS SCHMITT TRIGGER INVERTER
– TOP VIEW –

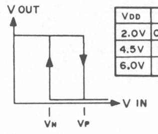

14 13 12 11 10 9 8
VDD (+2V to +6V)
GND
1 2 3 4 5 6 7



Y = $\overline{A}$

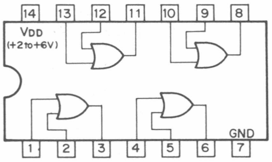
A	Y
0	1
1	0

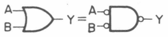
0; LOW LEVEL
1; HIGH LEVEL



VDD	VN	VP
2.0V	0.75V	1.25V
4.5V	1.9V	2.7V
6.0V	2.6V	3.6V

SN74HC32N (TI)
C-MOS 2-INPUT OR GATE
— TOP VIEW —


14 13 12 11 10 9 8
VDD (+2 to +6V)
GND
1 2 3 4 5 6 7



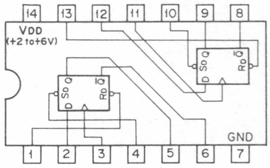
Y = A+B = $\overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

SN74HC74N (TI)

C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
– TOP VIEW –

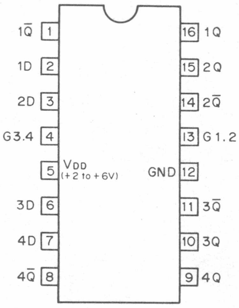

14
13
12
11
10
9
8
VDD
(+2 to+6V)
D
SD
Q
RD
Q̄
CK
GND
1
2
3
4
5
6
7

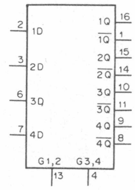
INPUTS				OUTPUTS	
$\overline{S_D}$	$\overline{R_D}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Qn}$

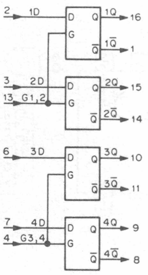
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

SN74HC75NS (TI) FLAT PACKAGE

C-MOS 4-BIT D-TYPE LATCH
– TOP VIEW –


1Q̄ 1
1D 2
2D 3
G3.4 4
5 VDD (+2 to +6V)
3D 6
4D 7
4Q̄ 8
16 1Q
15 2Q
14 2Q̄
13 G1.2
GND 12
11 3Q̄
10 3Q
9 4Q

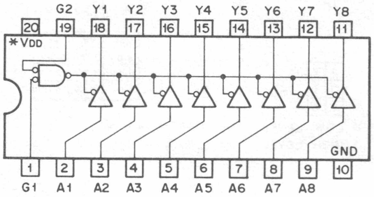

2 1D
3 2D
6 3D
7 4D
1Q 16
1Q̄ 1
2Q 15
2Q̄ 14
3Q 10
3Q̄ 11
4Q 9
4Q̄ 8
G1,2 13
G3,4 4

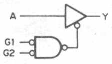

2 1D
1Q 16
1Q̄ 1
3 2D
13 G1,2
2Q 15
2Q̄ 14
6 3D
3Q 10
3Q̄ 11
7 4D
4 G3,4
4Q 9
4Q̄ 8
D
Q
G
Q̄

INPUTS		OUTPUTS		FUNCTION
D	G	Q	$\overline{Q}$	
0	1	0	1	–
1	1	1	0	–
X	0	Qn	$\overline{Qn}$	LATCH

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

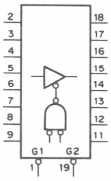
SN74HCT541N (TI)
C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS
— TOP VIEW —


G2
Y1
Y2
Y3
Y4
Y5
Y6
Y7
Y8
20
19
18
17
16
15
14
13
12
11
*VDD
GND
1
2
3
4
5
6
7
8
9
10
G1
A1
A2
A3
A4
A5
A6
A7
A8



G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

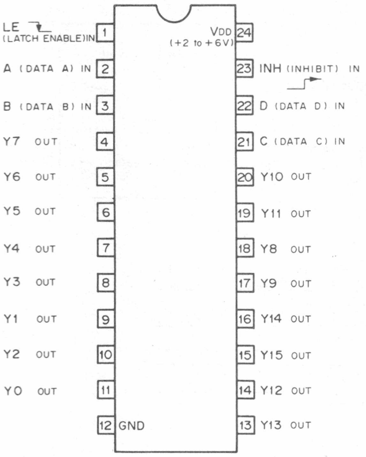
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

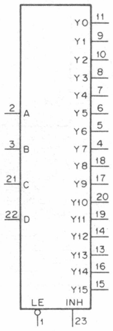

2
3
4
5
6
7
8
9
18
17
16
15
14
13
12
11
G1
G2
1
19

✻ VDD HC ; +2 to +6V
HCT ; +5V

SN74HC4514NT (TI) FLAT PACKAGE

C-MOS 4-LINE TO 16-LINE DECODER/DEMULTIPLEXER WITH ADDRESS LATCHES
– TOP VIEW –

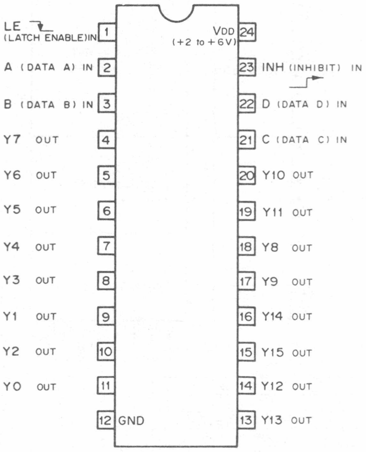

LE (LATCH ENABLE) IN 1
A (DATA A) IN 2
B (DATA B) IN 3
Y7 OUT 4
Y6 OUT 5
Y5 OUT 6
Y4 OUT 7
Y3 OUT 8
Y1 OUT 9
Y2 OUT 10
Y0 OUT 11
12 GND
VDD (+2 to +6V) 24
23 INH (INHIBIT) IN
22 D (DATA D) IN
21 C (DATA C) IN
20 Y10 OUT
19 Y11 OUT
18 Y8 OUT
17 Y9 OUT
16 Y14 OUT
15 Y15 OUT
14 Y12 OUT
13 Y13 OUT

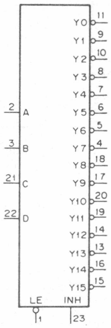

2 A
3 B
21 C
22 D
Y0 11
Y1 9
Y2 10
Y3 8
Y4 7
Y5 6
Y6 5
Y7 4
Y8 18
Y9 17
Y10 20
Y11 19
Y12 14
Y13 13
Y14 16
Y15 15
LE 1
INH 23

INH	LATCHED DATA				SELECTED OUTPUTS									
	D	C	B	A	Y15	Y14	Y13	Y12	----	Y4	Y3	Y2	Y1	Y0
0	0	0	0	0	0	0	0	0	----	0	0	0	0	1
0	0	0	0	1	0	0	0	0	----	0	0	0	1	0
0	0	0	1	0	0	0	0	0	----	0	0	1	0	0
0	0	0	1	1	0	0	0	0	----	0	1	0	0	0
0	0	1	0	0	0	0	0	0	----	1	0	0	0	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
0	1	1	0	0	0	0	0	1	----	0	0	0	0	0
0	1	1	0	1	0	0	1	0	----	0	0	0	0	0
0	1	1	1	0	0	1	0	0	----	0	0	0	0	0
0	1	1	1	1	1	0	0	0	----	0	0	0	0	0
1	X	X	X	X	ALL OUTPUTS = 0									

SN74HC4515NT (TI) FLAT PACKAGE

C-MOS 4-LINE TO 16-LINE DECODER/DEMULTIPLEXER WITH ADDRESS LATCHES
– TOP VIEW –


LE (LATCH ENABLE) IN 1
A (DATA A) IN 2
B (DATA B) IN 3
Y7 OUT 4
Y6 OUT 5
Y5 OUT 6
Y4 OUT 7
Y3 OUT 8
Y1 OUT 9
Y2 OUT 10
Y0 OUT 11
12 GND
VDD (+2 to +6V) 24
23 INH (INHIBIT) IN
22 D (DATA D) IN
21 C (DATA C) IN
20 Y10 OUT
19 Y11 OUT
18 Y8 OUT
17 Y9 OUT
16 Y14 OUT
15 Y15 OUT
14 Y12 OUT
13 Y13 OUT

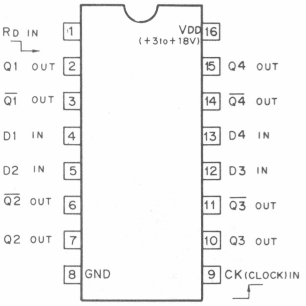

2 A
3 B
21 C
22 D
Y0 11
Y1 9
Y2 10
Y3 8
Y4 7
Y5 6
Y6 5
Y7 4
Y8 18
Y9 17
Y10 20
Y11 19
Y12 14
Y13 13
Y14 16
Y15 15
LE 1
INH 23

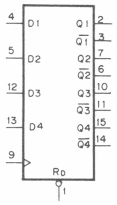
INH	LATCHED DATA				SELECTED OUTPUTS									
	D	C	B	A	Y15	Y14	Y13	Y12	----	Y4	Y3	Y2	Y1	Y0
0	0	0	0	0	1	1	1	1	----	1	1	1	1	0
0	0	0	0	1	1	1	1	1	----	1	1	1	0	1
0	0	0	1	0	1	1	1	1	----	1	1	0	1	1
0	0	0	1	1	1	1	1	1	----	1	0	1	1	1
0	0	1	0	0	1	1	1	1	----	0	1	1	1	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
0	1	1	0	0	1	1	1	0	----	1	1	1	1	1
0	1	1	0	1	1	1	0	1	----	1	1	1	1	1
0	1	1	1	0	1	0	1	1	----	1	1	1	1	1
0	1	1	1	1	0	1	1	1	----	1	1	1	1	1
1	X	X	X	X	ALL OUTPUTS = 1									

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC40175BF (TOSHIBA) FLAT PACKAGE

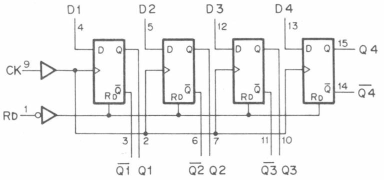
C-MOS D-TYPE FLIP-FLOP
— TOP VIEW —


RD IN 1
Q1 OUT 2
Q1 OUT 3
D1 IN 4
D2 IN 5
Q2 OUT 6
Q2 OUT 7
8 GND
VDD 16 (+3to+18V)
15 Q4 OUT
14 Q4 OUT
13 D4 IN
12 D3 IN
11 Q3 OUT
10 Q3 OUT
9 CK (CLOCK) IN


D1
D2
D3
D4
Q1 Q1 Q2 Q2 Q3 Q3 Q4 Q4
RD

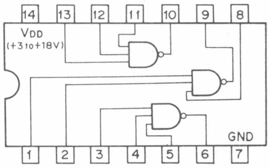
CK	D	RD	Q	$\overline{Q}$
↑	0	1	0	1
↑	1	1	1	0
↓	X	1	Q0	$\overline{Q0}$
X	X	0	0	1

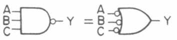
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE


D1 D2 D3 D4
CK 9
RD 1
Q4
Q4
Q1 Q1 Q2 Q2 Q3 Q3

TC4023BF (TOSHIBA) FLAT PACKAGE

C-MOS 3-INPUT NAND GATE
— TOP VIEW —


VDD (+3to+18V)
GND



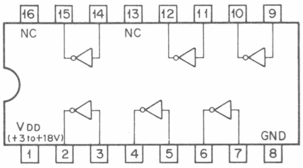
Y = $\overline{A \cdot B \cdot C}$ = $\overline{A}+\overline{B}+\overline{C}$

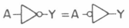
A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

TC4049BF (TOSHIBA) FLAT PACKAGE

C-MOS INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —


NC
NC
VDD (+3to+18V)
GND



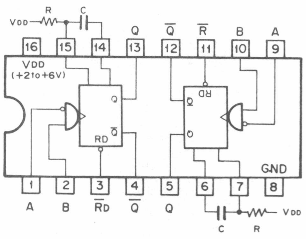
Y = $\overline{A}$

A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

TC74HC123F (TOSHIBA) FLAT PACKAGE

C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
— TOP VIEW —


VDD R C
Q Q RD B A
VDD (+2to+6V)
GND
A B RD Q Q
C R VDD

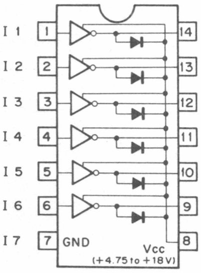
INPUT			OUTPUT	
$\overline{RD}$	A	B	Q	$\overline{Q}$
0	X	X	0	1
1	1	X	0	1
1	X	0	0	1
1	0	↑	⎍	⊔
1	↓	1	⎍	⊔
↑	0	1	⎍	⊔

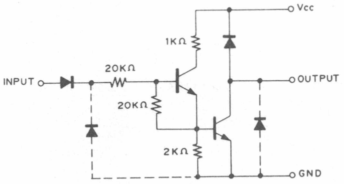
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

OUTPUT PULSE WIDTH = 0.46CR

TD62306P (TOSHIBA)

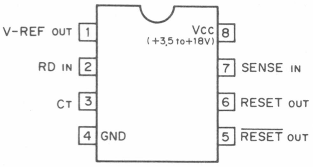
LOW SATURATION DRIVER
— TOP VIEW —

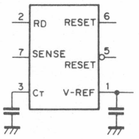

I1 I2 I3 I4 I5 I6 I7
O1 O2 O3 O4 O5 O6 O7
GND
Vcc (+4.75to+18V)

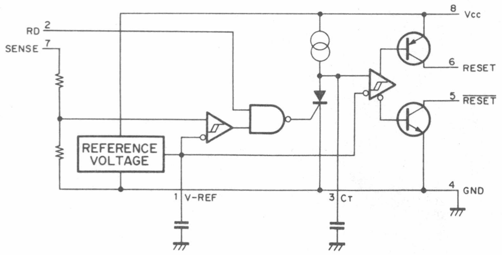

Vcc
1KΩ
20KΩ
INPUT
OUTPUT
20KΩ
2KΩ
GND

TL7705CP-B (TI)

POWER VOLTAGE SUPERVISOR
— TOP VIEW —

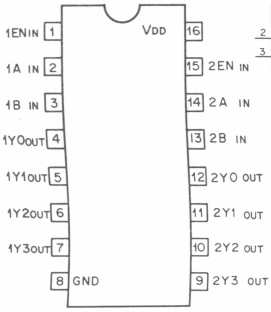

V-REF OUT 1
RD IN 2
CT 3
4 GND
Vcc 8 (+3.5to+18V)
7 SENSE IN
6 RESET OUT
5 RESET OUT

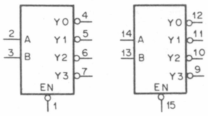

RD RESET
SENSE RESET
CT V-REF


RD 2
SENSE 7
8 Vcc
6 RESET
5 RESET
REFERENCE VOLTAGE
1 V-REF
3 CT
4 GND

SN74HC139N (TI) (V_{DD} = +2 to +6V)
TC74HC139P (TOSHIBA) (V_{DD} = +2 to +6V)
uPD74HC139C (NEC) (V_{DD} = +2 to +6V)

C-MOS 1-OF-4 DECODER/DEMULTIPLEXER
— TOP VIEW —


1EN IN 1
1A IN 2
1B IN 3
1Y0 OUT 4
1Y1 OUT 5
1Y2 OUT 6
1Y3 OUT 7
8 GND
VDD 16
15 2EN IN
14 2A IN
13 2B IN
12 2Y0 OUT
11 2Y1 OUT
10 2Y2 OUT
9 2Y3 OUT

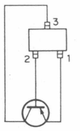

A B Y0 Y1 Y2 Y3 EN
A B Y0 Y1 Y2 Y3 EN

INPUTS			OUTPUTS			
EN	B	A	Y3	Y2	Y1	Y0
0	0	0	1	1	1	0
0	0	1	1	1	0	1
0	1	0	1	0	1	1
0	1	1	0	1	1	1
1	X	X	1	1	1	1

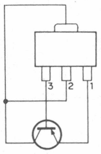
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

TRANSISTOR, DIODE

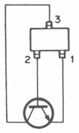
TRANSISTOR



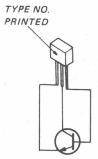
2SA812



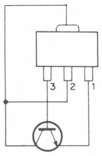
2SB1115A



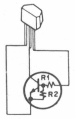
2SC1623
2SC3545


TYPE NO. PRINTED

2SC2785F

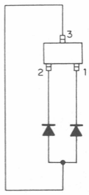


2SD1615A

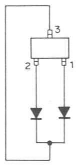


DTC144WS (R1=47K, R2=22K)

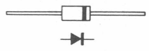
DIODE



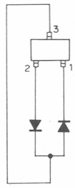
1S2835-T1



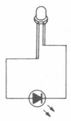
1S2837-T1



1SS119



1SS123



TLY123 ; YELLOW

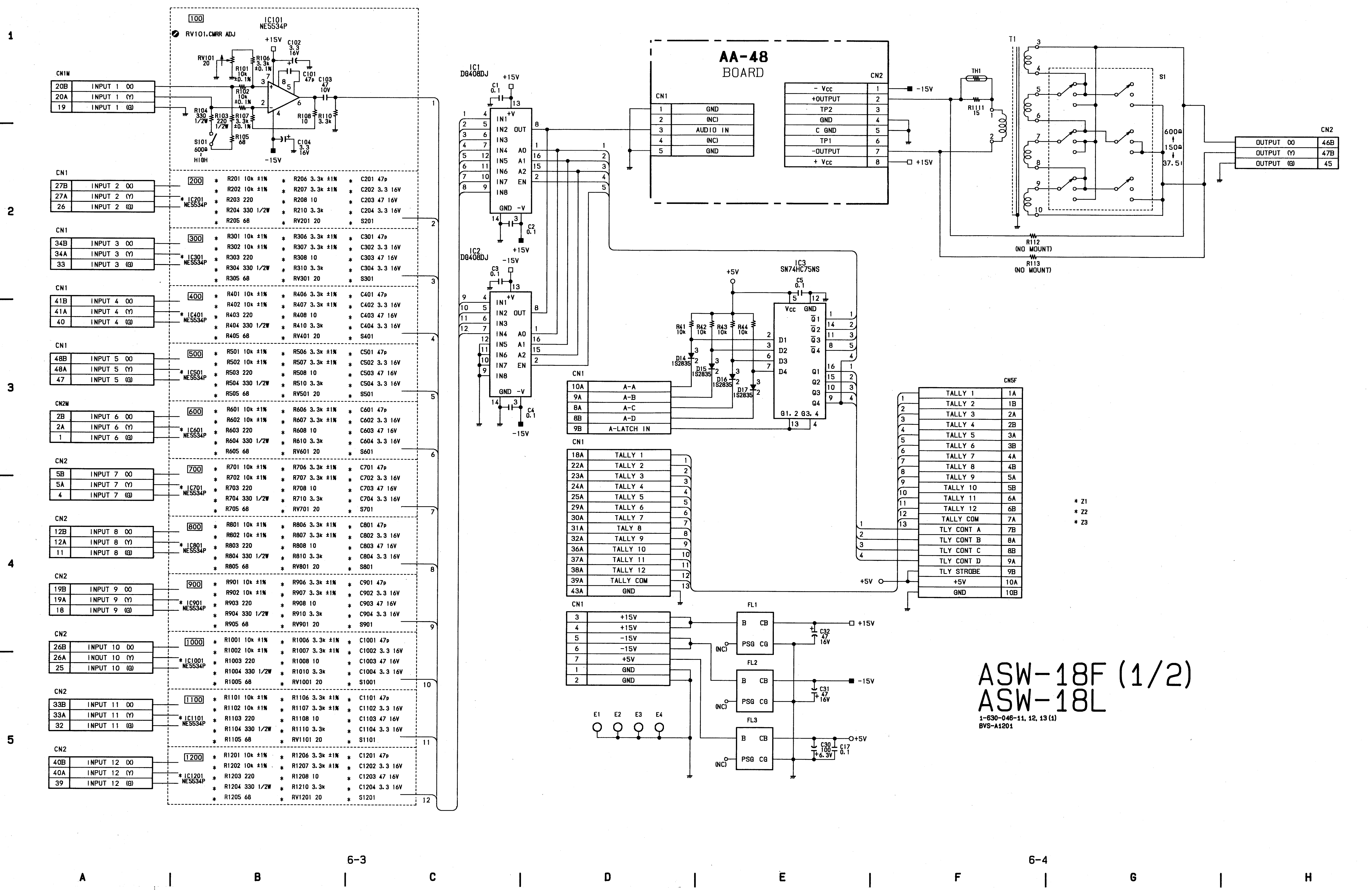
SECTION 6
SCHEMATIC DIAGRAMS

CIRCUIT FUNCTION OF THE SCHEMATIC DIAGRAMS

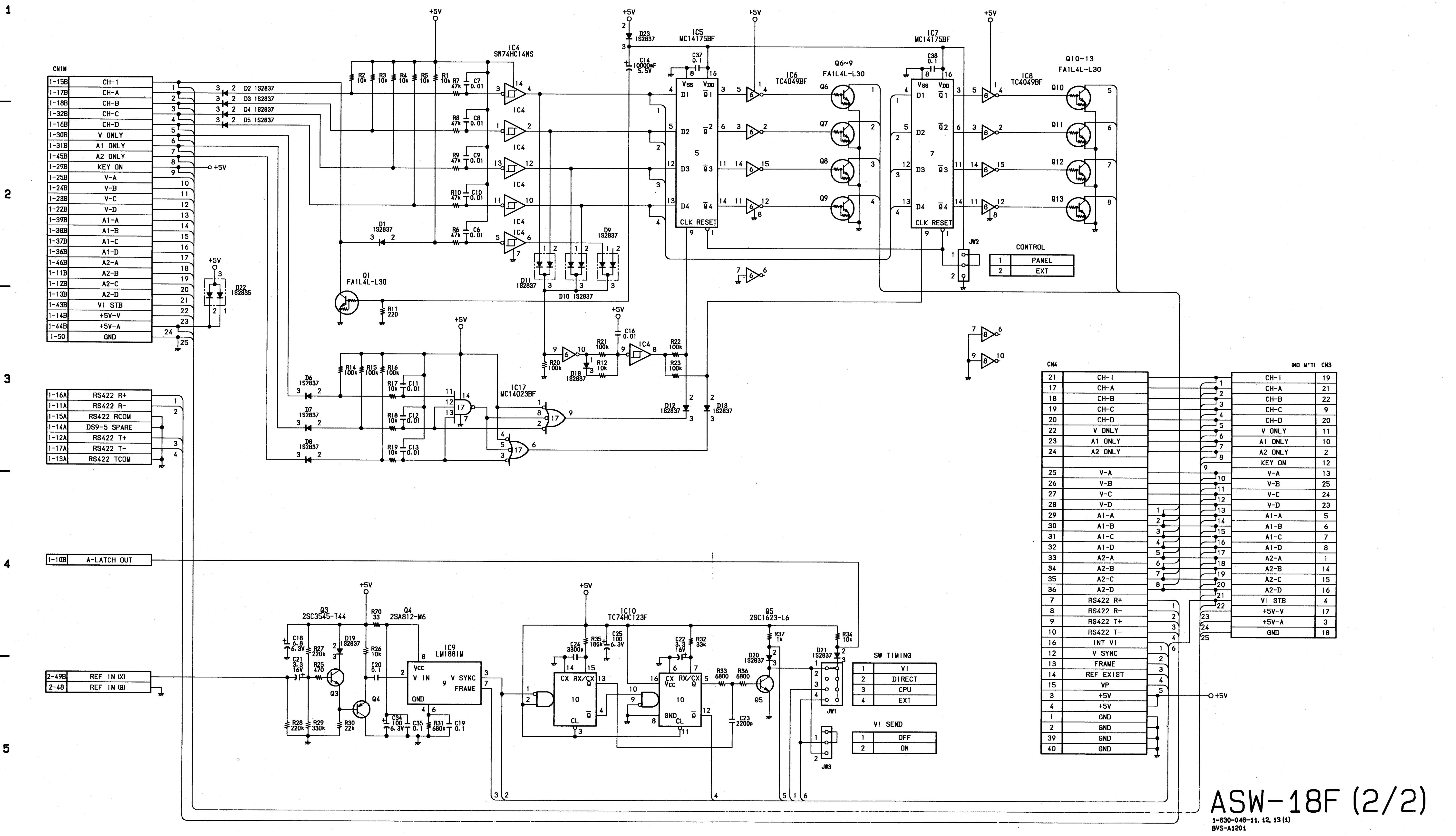
The circuit information is provided below.

CIRCUIT BOARD	CIRCUIT FUNCTION
AA-48	AUDIO AMPLIFIER BOARD
ASW-18	AUDIO SWITCH BOARD
IF-278	SERIAL INTERFACE BOARD
LE-76	LED BOARD
MB-264 (FOR E)	MOTHER BOARD
MB-274 (FOR J)	
RY-9	TALLY BOARD
SW-354	SWITCH BOARD (BKS-R1210)

ASW-18F (1/2); AUDIO SWITCH BOARD
ASW-18L; AUDIO SWITCH BOARD


1
2
3
4
5
CN1M
20B INPUT 1 (X)
20A INPUT 1 (Y)
19 INPUT 1 (G)
100
IC101 NE5534P
RV101,CMRR ADJ
+15V
C102 3.3 16V
RV101 20
R101 10k ±0.1%
R106 3.3k ±0.1%
C101 47p
C103 47 10V
R102 10k ±0.1%
R104 330 1/2W
R103 220 1/2W
R107 3.3k ±0.1%
R105 68
R108 10
R110 3.3k
C104 3.3 16V
S101 600Ω HIGH
-15V
CN1
27B INPUT 2 (X)
27A INPUT 2 (Y)
26 INPUT 2 (G)
* IC201 NE5534P
200
R201 10k ±1%
R202 10k ±1%
R203 220
R204 330 1/2W
R205 68
R206 3.3k ±1%
R207 3.3k ±1%
R208 10
R210 3.3k
RV201 20
C201 47p
C202 3.3 16V
C203 47 16V
C204 3.3 16V
S201
34B INPUT 3 (X)
34A INPUT 3 (Y)
33 INPUT 3 (G)
300
41B INPUT 4 (X)
41A INPUT 4 (Y)
40 INPUT 4 (G)
400
48B INPUT 5 (X)
48A INPUT 5 (Y)
47 INPUT 5 (G)
500
CN2M
2B INPUT 6 (X)
2A INPUT 6 (Y)
1 INPUT 6 (G)
600
CN2
5B INPUT 7 (X)
5A INPUT 7 (Y)
4 INPUT 7 (G)
700
12B INPUT 8 (X)
12A INPUT 8 (Y)
11 INPUT 8 (G)
800
19B INPUT 9 (X)
19A INPUT 9 (Y)
18 INPUT 9 (G)
900
26B INPUT 10 (X)
26A INOUT 10 (Y)
25 INPUT 10 (G)
1000
33B INPUT 11 (X)
33A INPUT 11 (Y)
32 INPUT 11 (G)
1100
40B INPUT 12 (X)
40A INPUT 12 (Y)
39 INPUT 12 (G)
1200
IC1 DG408DJ
IC2 DG408DJ
IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8
OUT A0 A1 A2 EN
GND -V
+V
C1 0.1
C2 0.1
C3 0.1
C4 0.1
AA-48 BOARD
CN1
1 GND
2 (NC)
3 AUDIO IN
4 (NC)
5 GND
CN2
- Vcc 1
+OUTPUT 2
TP2 3
GND 4
C GND 5
TP1 6
-OUTPUT 7
+ Vcc 8
-15V
+15V
T1
TH1
R1111 15
S1
600Ω
150Ω
37.5Ω
R112 (NO MOUNT)
R113 (NO MOUNT)
CN2
OUTPUT (X) 46B
OUTPUT (Y) 47B
OUTPUT (G) 45
+5V
IC3 SN74HC75NS
C5 0.1
Vcc GND
D1 D2 D3 D4
Q1 Q2 Q3 Q4
G1, 2 G3, 4
R41 10k
R42 10k
R43 10k
R44 10k
D14 1S2835
D15 1S2835
D16 1S2835
D17 1S2835
CN1
10A A-A
9A A-B
8A A-C
8B A-D
9B A-LATCH IN
CN1
18A TALLY 1
22A TALLY 2
23A TALLY 3
24A TALLY 4
25A TALLY 5
29A TALLY 6
30A TALLY 7
31A TALY 8
32A TALLY 9
36A TALLY 10
37A TALLY 11
38A TALLY 12
39A TALLY COM
43A GND
CN5F
TALLY 1 1A
TALLY 2 1B
TALLY 3 2A
TALLY 4 2B
TALLY 5 3A
TALLY 6 3B
TALLY 7 4A
TALLY 8 4B
TALLY 9 5A
TALLY 10 5B
TALLY 11 6A
TALLY 12 6B
TALLY COM 7A
TLY CONT A 7B
TLY CONT B 8A
TLY CONT C 8B
TLY CONT D 9A
TLY STROBE 9B
+5V 10A
GND 10B
CN1
3 +15V
4 +15V
5 -15V
6 -15V
7 +5V
1 GND
2 GND
FL1
FL2
FL3
B CB
PSG CG
(NC)
C32 47 16V
C31 47 16V
C30 100 6.3V
C17 0.1
E1 E2 E3 E4
* Z1
* Z2
* Z3
ASW-18F (1/2)
ASW-18L
1-630-046-11, 12, 13 (1)
BVS-A1201
A
B
C
D
E
F
G
H

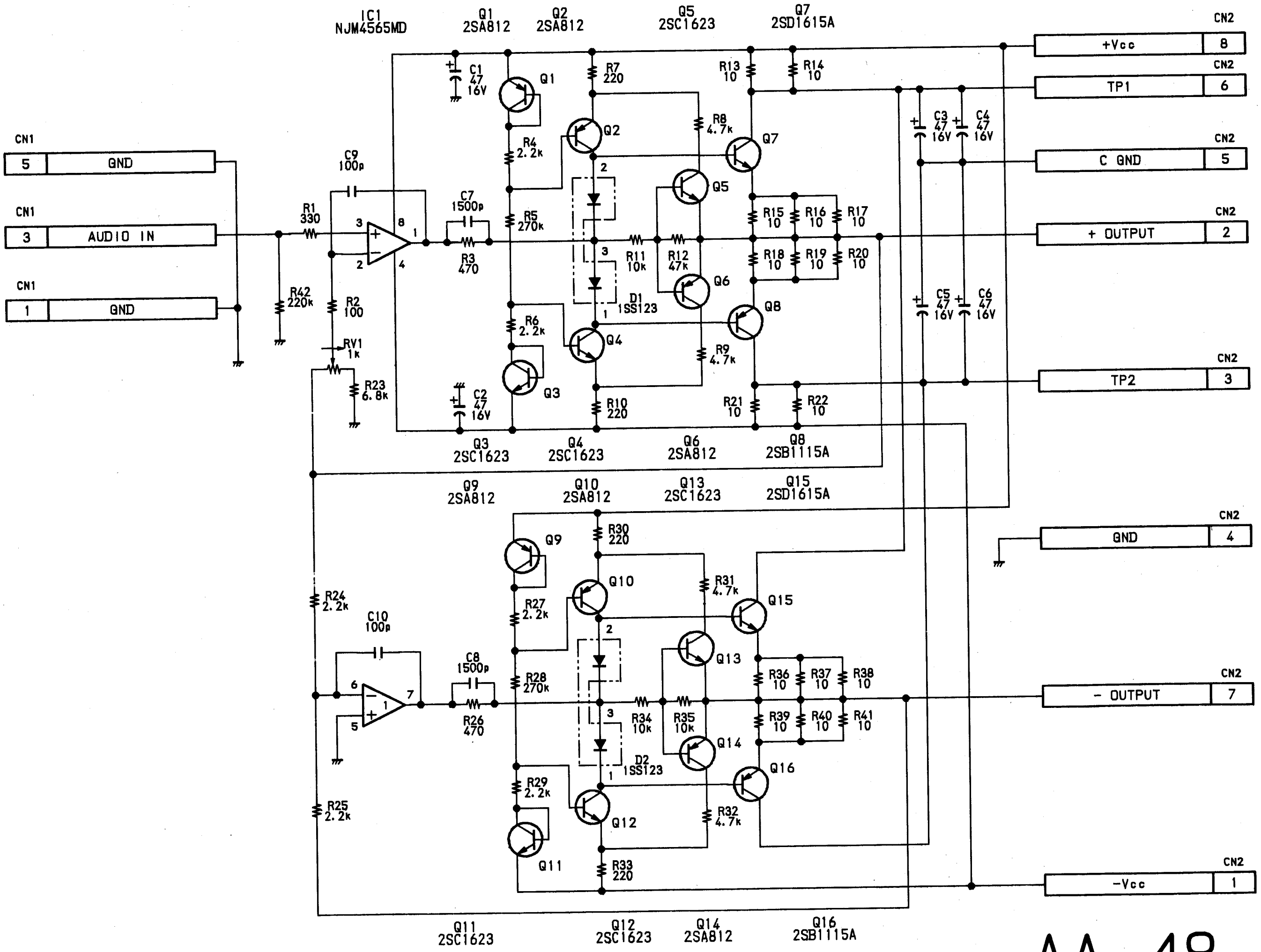
ASW-18F (2/2) ; AUDIO SWITCH BOARD


CN1M
1-15B CH-1
1-17B CH-A
1-18B CH-B
1-32B CH-C
1-16B CH-D
1-30B V ONLY
1-31B A1 ONLY
1-45B A2 ONLY
1-29B KEY ON
1-25B V-A
1-24B V-B
1-23B V-C
1-22B V-D
1-39B A1-A
1-38B A1-B
1-37B A1-C
1-36B A1-D
1-46B A2-A
1-11B A2-B
1-12B A2-C
1-13B A2-D
1-43B VI STB
1-14B +5V-V
1-44B +5V-A
1-50 GND
1-16A RS422 R+
1-11A RS422 R-
1-15A RS422 RCOM
1-14A DS9-5 SPARE
1-12A RS422 T+
1-17A RS422 T-
1-13A RS422 TCOM
1-10B A-LATCH OUT
2-49B REF IN (X)
2-48 REF IN (G)
D2 1S2837
D3 1S2837
D4 1S2837
D5 1S2837
D22 1S2835
IC4 SN74HC14NS
R2 10k R3 10k R4 10k R5 10k R1 10k
R7 47k C7 0.01
R8 47k C8 0.01
R9 47k C9 0.01
R10 47k C10 0.01
R6 47k C6 0.01
D1 1S2837
Q1 FA1L4L-L30
R11 220
D11 1S2837
D10 1S2837
D9 1S2837
D23 1S2837
C14 10000mF 5.5V
IC5 MC14175BF
C37 0.1
IC6 TC4049BF
Q6~9 FA1L4L-L30
IC7 MC14175BF
C38 0.1
IC8 TC4049BF
Q10~13 FA1L4L-L30
JW2
CONTROL
1 PANEL
2 EXT
R14 100k R15 100k R16 100k
R17 10k C11 0.01
R18 10k C12 0.01
R19 10k C13 0.01
D6 1S2837
D7 1S2837
D8 1S2837
IC17 MC14023BF
R20 100k R21 100k R12 10k D18 1S2837
C16 0.01
R22 100k R23 100k
D12 1S2837 D13 1S2837
CN4
21 CH-1
17 CH-A
18 CH-B
19 CH-C
20 CH-D
22 V ONLY
23 A1 ONLY
24 A2 ONLY
25 V-A
26 V-B
27 V-C
28 V-D
29 A1-A
30 A1-B
31 A1-C
32 A1-D
33 A2-A
34 A2-B
35 A2-C
36 A2-D
7 RS422 R+
8 RS422 R-
9 RS422 T+
10 RS422 T-
16 INT VI
12 V SYNC
13 FRAME
14 REF EXIST
15 VP
3 +5V
4 +5V
1 GND
2 GND
39 GND
40 GND
(NO M'T) CN3
CH-1 19
CH-A 21
CH-B 22
CH-C 9
CH-D 20
V ONLY 11
A1 ONLY 10
A2 ONLY 2
KEY ON 12
V-A 13
V-B 25
V-C 24
V-D 23
A1-A 5
A1-B 6
A1-C 7
A1-D 8
A2-A 1
A2-B 14
A2-C 15
A2-D 16
VI STB 4
+5V-V 17
+5V-A 3
GND 18
Q3 2SC3545-T44
R70 33
Q4 2SA812-M6
C18 6.8 6.3V
R27 220k
D19 1S2837
C21 3.3 16V
R25 470
R26 10k
C20 0.1
IC9 LM1881M
VCC V IN V SYNC FRAME GND
R28 220k R29 330k R30 22k
C34 100 6.3V C35 0.1 R31 680k C19 0.1
IC10 TC74HC123F
C24 3300p R35 180k C25 100 6.3V
C22 3.3 16V R32 33k
R33 6800 R36 6800
C23 2200p
Q5 2SC1623-L6
R37 1k R34 10k
D20 1S2837 D21 1S2837
JW1
SW TIMING
1 VI
2 DIRECT
3 CPU
4 EXT
VI SEND
1 OFF
2 ON
JW3
+5V
1 2 3 4 5
A B C D E F G H

ASW-18F (2/2)

1-630-046-11, 12, 13 (1)
BVS-A1201

AA-48: AUDIO AMPLIFIER BOARD


IC1
NJM4565MD
Q1
2SA812
Q2
2SA812
Q5
2SC1623
Q7
2SD1615A
CN2
+Vcc
8
TP1
6
C GND
5
+ OUTPUT
2
TP2
3
GND
4
- OUTPUT
7
-Vcc
1
CN1
5
GND
3
AUDIO IN
1
GND
C1
47
16V
C2
47
16V
C3
47
16V
C4
47
16V
C5
47
16V
C6
47
16V
C7
1500p
C8
1500p
C9
100p
C10
100p
R1
330
R2
100
R3
470
R4
2.2k
R5
270k
R6
2.2k
R7
220
R8
4.7k
R9
4.7k
R10
220
R11
10k
R12
47k
R13
10
R14
10
R15
10
R16
10
R17
10
R18
10
R19
10
R20
10
R21
10
R22
10
R23
6.8k
R24
2.2k
R25
2.2k
R26
470
R27
2.2k
R28
270k
R29
2.2k
R30
220
R31
4.7k
R32
4.7k
R33
220
R34
10k
R35
10k
R36
10
R37
10
R38
10
R39
10
R40
10
R41
10
R42
220k
RV1
1k
D1
1SS123
D2
1SS123
Q3
2SC1623
Q4
2SC1623
Q6
2SA812
Q8
2SB1115A
Q9
2SA812
Q10
2SA812
Q13
2SC1623
Q15
2SD1615A
Q11
2SC1623
Q12
2SC1623
Q14
2SA812
Q16
2SB1115A

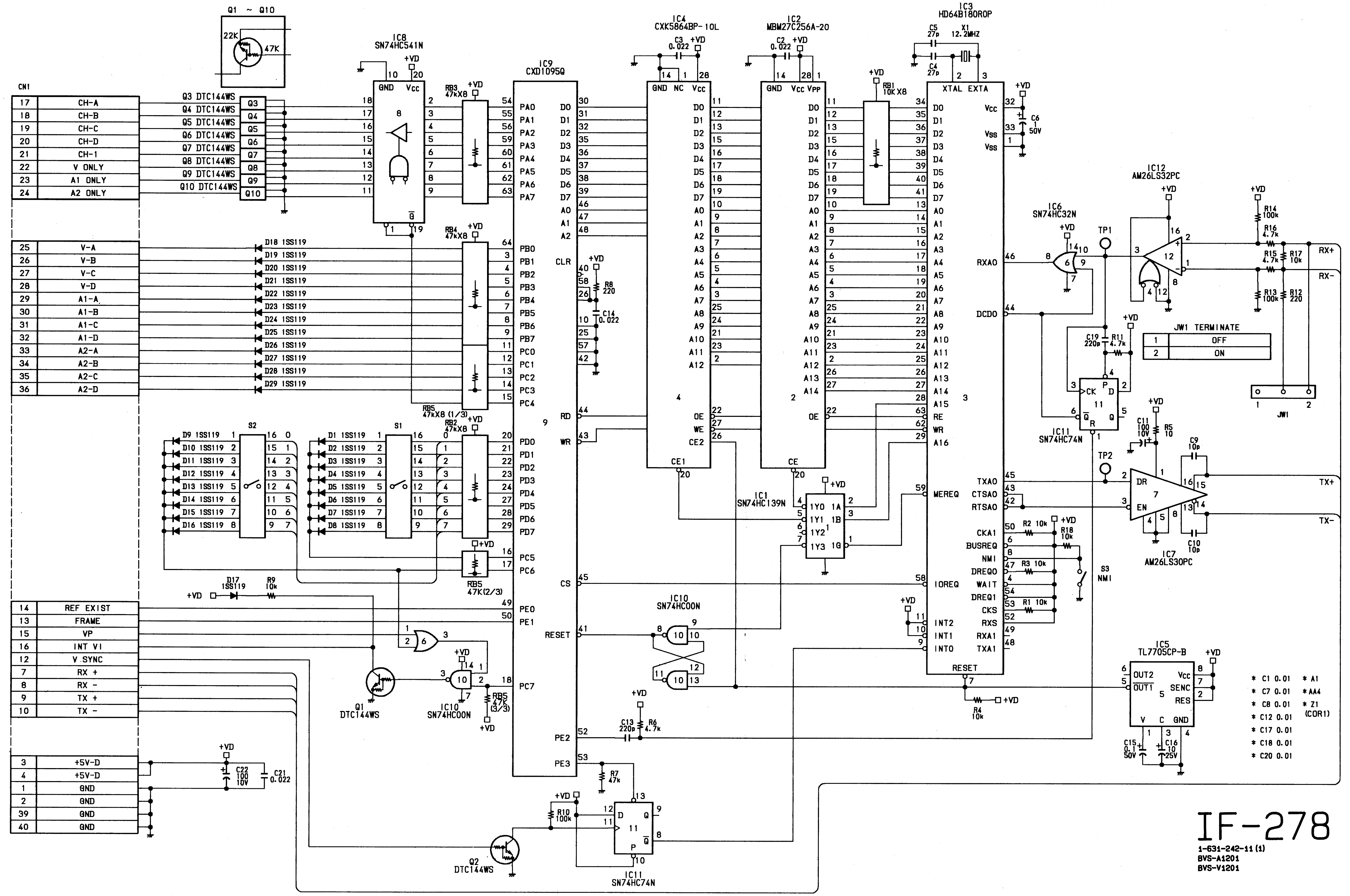
AA-48

1-630-043-11, 12 (1)
BVS-A1201
BVS-A1212

⊘ RV1 , OUTPUT LEVEL

IF-278; SERIAL INTERFACE BOARD

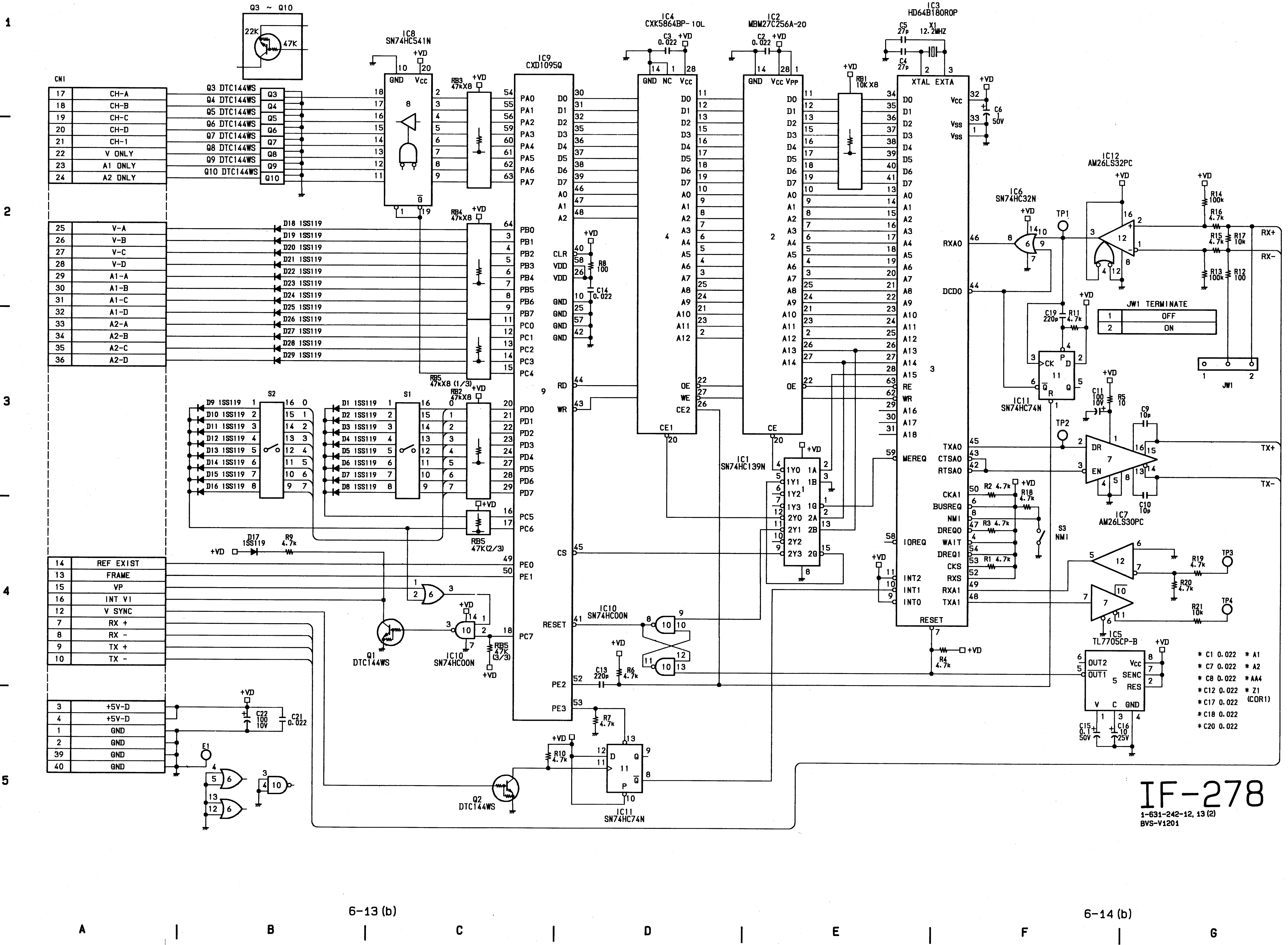
S/N 10001 TO 10015 (E)
S/N 20001 TO 20005 (J)


CN1
17 CH-A
18 CH-B
19 CH-C
20 CH-D
21 CH-1
22 V ONLY
23 A1 ONLY
24 A2 ONLY
25 V-A
26 V-B
27 V-C
28 V-D
29 A1-A
30 A1-B
31 A1-C
32 A1-D
33 A2-A
34 A2-B
35 A2-C
36 A2-D
14 REF EXIST
13 FRAME
15 VP
16 INT VI
12 V SYNC
7 RX +
8 RX -
9 TX +
10 TX -
3 +5V-D
4 +5V-D
1 GND
2 GND
39 GND
40 GND
Q1 ~ Q10
22K
47K
Q3 DTC144WS
Q4 DTC144WS
Q5 DTC144WS
Q6 DTC144WS
Q7 DTC144WS
Q8 DTC144WS
Q9 DTC144WS
Q10 DTC144WS
IC8 SN74HC541N
IC9 CXD1095Q
IC4 CXK5864BP-10L
IC2 MBM27C256A-20
IC3 HD64B180R0P
X1 12.2MHZ
C5 27p
C4 27p
C3 0.022
C2 0.022
C6 1 50V
RB1 10K X8
RB3 47kX8
RB4 47kX8
RB5 47kX8 (1/3)
RB2 47kX8
RB5 47K(2/3)
RB5 47K (3/3)
D18 1SS119 – D29 1SS119
D1 1SS119 – D8 1SS119
D9 1SS119 – D16 1SS119
S1
S2
D17 1SS119
R9 10k
R8 220
C14 0.022
IC1 SN74HC139N
IC10 SN74HC00N
IC11 SN74HC74N
IC6 SN74HC32N
IC12 AM26LS32PC
IC7 AM26LS30PC
IC5 TL7705CP-B
TP1
TP2
R14 100k
R16 4.7k
R15 4.7k
R17 10k
R13 100k
R12 220
C19 220p
R11 4.7k
C11 100 10V
R5 10
C9 10p
C10 10p
R2 10k
R18 10k
R3 10k
R1 10k
R4 10k
S3 NMI
JW1 TERMINATE
1 OFF
2 ON
JW1
RX+
RX-
TX+
TX-
Q1 DTC144WS
Q2 DTC144WS
R10 100k
R7 47k
C13 220p
R6 4.7k
C22 100 10V
C21 0.022
C15 0.1 50V
C16 10 25V
+VD
* C1 0.01
* C7 0.01
* C8 0.01
* C12 0.01
* C17 0.01
* C18 0.01
* C20 0.01
* A1
* AA4
* Z1 (COR1)

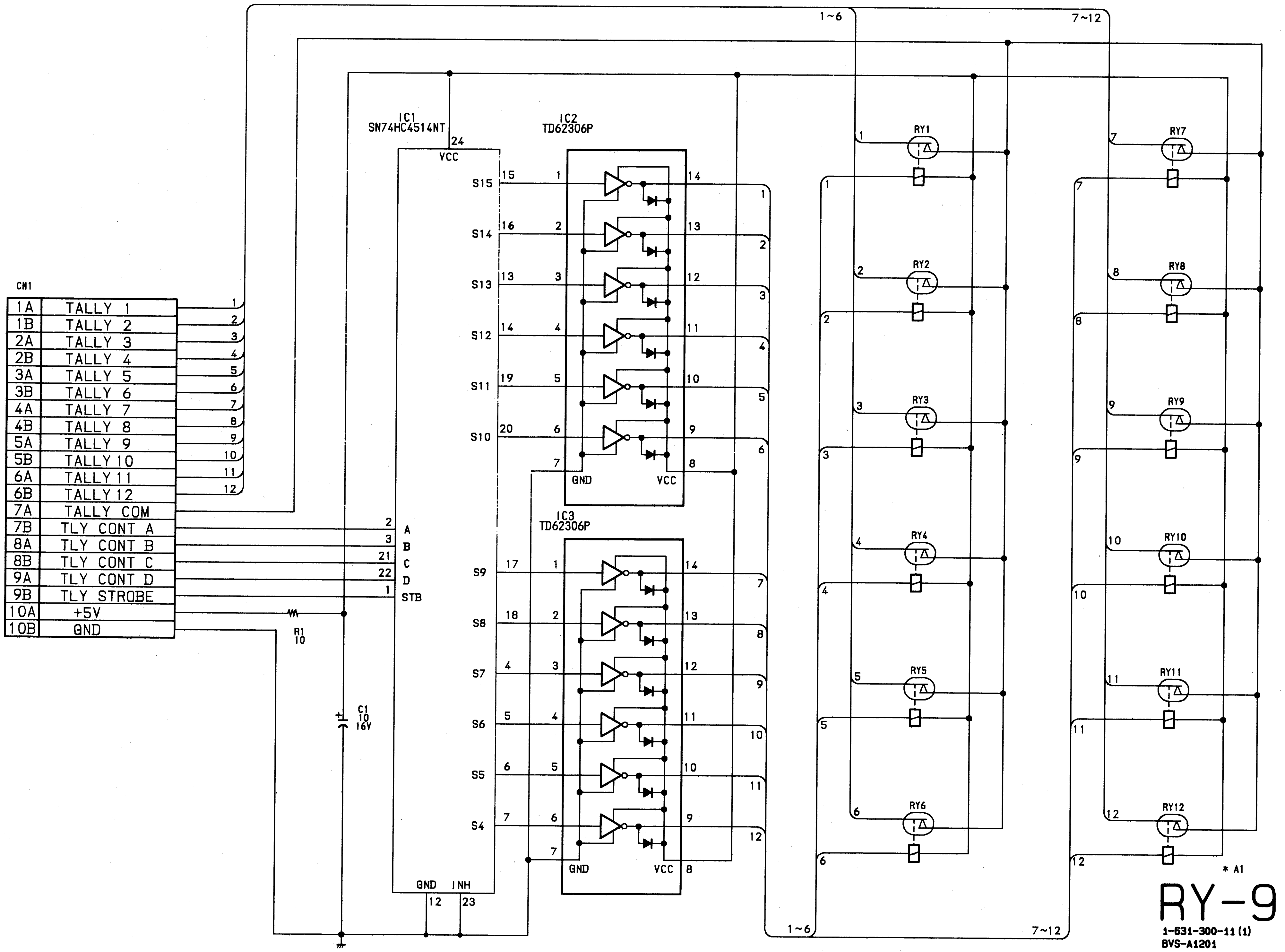
IF-278
1-631-242-11 (1)
BVS-A1201
BVS-V1201

IF-278; SERIAL INTERFACE BOARD

S/N 10016 AND HIGHER (E)
S/N 20006 AND HIGHER (J)


1
2
3
4
5
A
B
C
D
E
F
G
H
Q3 ~ Q10
22K
47K
CN1
17 CH-A
18 CH-B
19 CH-C
20 CH-D
21 CH-1
22 V ONLY
23 A1 ONLY
24 A2 ONLY
25 V-A
26 V-B
27 V-C
28 V-D
29 A1-A
30 A1-B
31 A1-C
32 A1-D
33 A2-A
34 A2-B
35 A2-C
36 A2-D
14 REF EXIST
13 FRAME
15 VP
16 INT VI
12 V SYNC
7 RX +
8 RX -
9 TX +
10 TX -
3 +5V-D
4 +5V-D
1 GND
2 GND
39 GND
40 GND
Q3 DTC144WS
Q4 DTC144WS
Q5 DTC144WS
Q6 DTC144WS
Q7 DTC144WS
Q8 DTC144WS
Q9 DTC144WS
Q10 DTC144WS
IC8 SN74HC541N
RB3 47kX8
RB4 47kX8
RB5 47kX8 (1/3)
RB2 47kX8
RB5 47K(2/3)
RB5 47K (3/3)
D18 1SS119 … D29 1SS119
D9 1SS119 … D16 1SS119
D1 1SS119 … D8 1SS119
S1
S2
D17 1SS119
R9 4.7k
IC9 CXD1095Q
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
PE0 PE1 PE2 PE3
D0 D1 D2 D3 D4 D5 D6 D7
A0 A1 A2
CLR VDD GND RD WR CS RESET
R8 100
C14 0.022
IC4 CXK5864BP-10L
C3 0.022
IC2 MBM27C256A-20
C2 0.022
OE WE CE1 CE2 CE
IC1 SN74HC139N
IC3 HD64B180R0P
C5 27p
C4 27p
X1 12.2MHZ
XTAL EXTA
RB1 10kX8
C6 1 50V
RXA0 DCD0 TXA0 CTSA0 RTSA0
MEREQ IOREQ INT2 INT1 INT0
CKA1 BUSREQ NMI DREQ0 WAIT DREQ1 CKS RXS RXA1 TXA1
R2 4.7k
R3 4.7k
R1 4.7k
R18 4.7k
S3 NMI
IC6 SN74HC32N
TP1
TP2
TP3
TP4
IC12 AM26LS32PC
R14 100k
R16 4.7k
R15 4.7k
R17 10k
R13 100k
R12 100
RX+
RX-
TX+
TX-
JW1 TERMINATE
1 OFF
2 ON
JW1
C19 220p
R11 4.7k
IC11 SN74HC74N
C11 100 10V
R5 10
C9 10p
C10 10p
IC7 AM26LS30PC
DR EN
R19 4.7k
R20 4.7k
R21 10k
IC5 TL7705CP-B
OUT2 OUT1 Vcc SENC RES
C15 0.1 50V
C16 10 25V
R4 4.7k
IC10 SN74HC00N
C13 220p
R6 4.7k
R7 4.7k
R10 4.7k
Q1 DTC144WS
Q2 DTC144WS
C22 100 10V
C21 0.022
E1
+VD
* C1 0.022 * A1
* C7 0.022 * A2
* C8 0.022 * AA4
* C12 0.022 * Z1 (COR1)
* C17 0.022
* C18 0.022
* C20 0.022
IF-278
1-631-242-12, 13 (2)
BVS-V1201

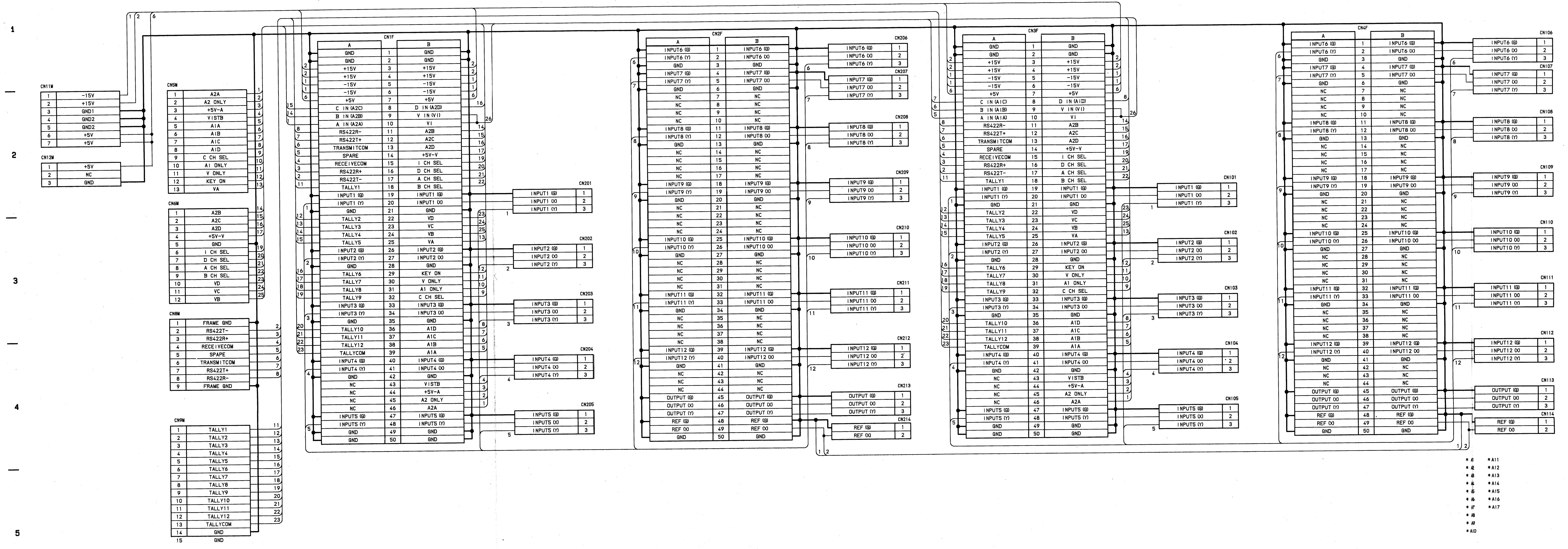
RY-9; TALLY BOARD


CN1
1A TALLY 1
1B TALLY 2
2A TALLY 3
2B TALLY 4
3A TALLY 5
3B TALLY 6
4A TALLY 7
4B TALLY 8
5A TALLY 9
5B TALLY 10
6A TALLY 11
6B TALLY 12
7A TALLY COM
7B TLY CONT A
8A TLY CONT B
8B TLY CONT C
9A TLY CONT D
9B TLY STROBE
10A +5V
10B GND
R1 10
C1 10 16V
IC1 SN74HC4514NT
VCC 24
A B C D STB
S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4
GND 12 INH 23
IC2 TD62306P
IC3 TD62306P
GND VCC
1~6
7~12
RY1 RY2 RY3 RY4 RY5 RY6 RY7 RY8 RY9 RY10 RY11 RY12
* A1

RY-9

1-631-300-11 (1)
BVS-A1201
BVS-V1201

MB-264; MOTHER BOARD (FOR E)
MB-274; MOTHER BOARD (FOR J)

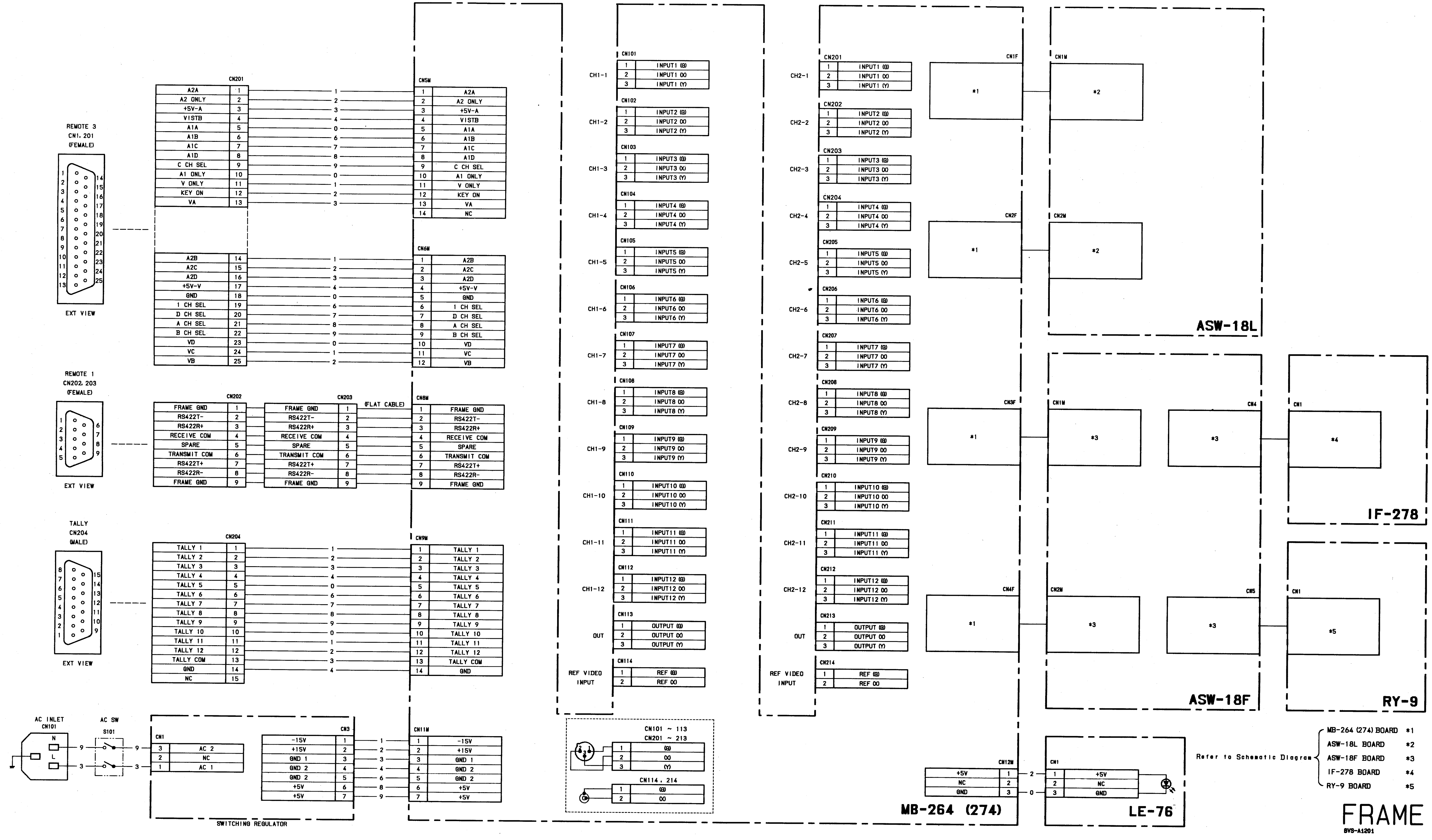

1
2
3
4
5
CN11M
-15V
+15V
GND1
GND2
GND2
+5V
+5V
CN12M
+5V
NC
GND
CN5M
A2A
A2 ONLY
+5V-A
VISTB
A1A
A1B
A1C
A1D
C CH SEL
A1 ONLY
V ONLY
KEY ON
VA
CN6M
A2B
A2C
A2D
+5V-V
GND
I CH SEL
D CH SEL
A CH SEL
B CH SEL
VD
VC
VB
CN8M
FRAME GND
RS422T-
RS422R+
RECEIVECOM
SPAPE
TRANSMITCOM
RS422T+
RS422R-
FRAME GND
CN9M
TALLY1
TALLY2
TALLY3
TALLY4
TALLY5
TALLY6
TALLY7
TALLY8
TALLY9
TALLY10
TALLY11
TALLY12
TALLYCOM
GND
GND
CN1F
CN2F
CN3F
CN4F
A
B
CN201
INPUT1 (G)
INPUT1 (X)
INPUT1 (Y)
CN202
INPUT2 (G)
INPUT2 (X)
INPUT2 (Y)
CN203
INPUT3 (G)
INPUT3 (X)
INPUT3 (Y)
CN204
INPUT4 (G)
INPUT4 (X)
INPUT4 (Y)
CN205
INPUT5 (G)
INPUT5 (X)
INPUT5 (Y)
CN206
INPUT6 (G)
INPUT6 (X)
INPUT6 (Y)
CN207
INPUT7 (G)
INPUT7 (X)
INPUT7 (Y)
CN208
INPUT8 (G)
INPUT8 (X)
INPUT8 (Y)
CN209
INPUT9 (G)
INPUT9 (X)
INPUT9 (Y)
CN210
INPUT10 (G)
INPUT10 (X)
INPUT10 (Y)
CN211
INPUT11 (G)
INPUT11 (X)
INPUT11 (Y)
CN212
INPUT12 (G)
INPUT12 (X)
INPUT12 (Y)
CN213
OUTPUT (G)
OUTPUT (X)
OUTPUT (Y)
CN214
REF (G)
REF (X)
CN101
CN102
CN103
CN104
CN105
CN106
CN107
CN108
CN109
CN110
CN111
CN112
CN113
CN114
REF (G)
REF (X)
GND
* A1
* A2
* A3
* A4
* A5
* A6
* A7
* A8
* A9
* A10
* A11
* A12
* A13
* A14
* A15
* A16
* A17

MB-264/274

1-630-048-11 (1) ---- MB-264
1-630-397-11 (1) ---- MB-274
BVS-A1201

B C D E F G H I J K L M N O P

FRAME


REMOTE 3
CN1, 201
(FEMALE)
EXT VIEW
CN201
A2A 1
A2 ONLY 2
+5V-A 3
VISTB 4
A1A 5
A1B 6
A1C 7
A1D 8
C CH SEL 9
A1 ONLY 10
V ONLY 11
KEY ON 12
VA 13
A2B 14
A2C 15
A2D 16
+5V-V 17
GND 18
I CH SEL 19
D CH SEL 20
A CH SEL 21
B CH SEL 22
VD 23
VC 24
VB 25
CN5M
1 A2A
2 A2 ONLY
3 +5V-A
4 VISTB
5 A1A
6 A1B
7 A1C
8 A1D
9 C CH SEL
10 A1 ONLY
11 V ONLY
12 KEY ON
13 VA
14 NC
CN6M
1 A2B
2 A2C
3 A2D
4 +5V-V
5 GND
6 I CH SEL
7 D CH SEL
8 A CH SEL
9 B CH SEL
10 VD
11 VC
12 VB
REMOTE 1
CN202, 203
(FEMALE)
EXT VIEW
CN202
CN203
(FLAT CABLE)
FRAME GND 1
RS422T- 2
RS422R+ 3
RECEIVE COM 4
SPARE 5
TRANSMIT COM 6
RS422T+ 7
RS422R- 8
FRAME GND 9
CN8M
1 FRAME GND
2 RS422T-
3 RS422R+
4 RECEIVE COM
5 SPARE
6 TRANSMIT COM
7 RS422T+
8 RS422R-
9 FRAME GND
TALLY
CN204
(MALE)
EXT VIEW
CN204
TALLY 1 1
TALLY 2 2
TALLY 3 3
TALLY 4 4
TALLY 5 5
TALLY 6 6
TALLY 7 7
TALLY 8 8
TALLY 9 9
TALLY 10 10
TALLY 11 11
TALLY 12 12
TALLY COM 13
GND 14
NC 15
CN9M
1 TALLY 1
2 TALLY 2
3 TALLY 3
4 TALLY 4
5 TALLY 5
6 TALLY 6
7 TALLY 7
8 TALLY 8
9 TALLY 9
10 TALLY 10
11 TALLY 11
12 TALLY 12
13 TALLY COM
14 GND
AC INLET
CN101
N
L
AC SW
S101
CN1
3 AC 2
2 NC
1 AC 1
CN3
-15V 1
+15V 2
GND 1 3
GND 2 4
GND 2 5
+5V 6
+5V 7
SWITCHING REGULATOR
CN11M
1 -15V
2 +15V
3 GND 1
4 GND 2
5 GND 2
6 +5V
7 +5V
CH1-1 CN101 1 INPUT1 (G) 2 INPUT1 (X) 3 INPUT1 (Y)
CH1-2 CN102 1 INPUT2 (G) 2 INPUT2 (X) 3 INPUT2 (Y)
CH1-3 CN103 1 INPUT3 (G) 2 INPUT3 (X) 3 INPUT3 (Y)
CH1-4 CN104 1 INPUT4 (G) 2 INPUT4 (X) 3 INPUT4 (Y)
CH1-5 CN105 1 INPUT5 (G) 2 INPUT5 (X) 3 INPUT5 (Y)
CH1-6 CN106 1 INPUT6 (G) 2 INPUT6 (X) 3 INPUT6 (Y)
CH1-7 CN107 1 INPUT7 (G) 2 INPUT7 (X) 3 INPUT7 (Y)
CH1-8 CN108 1 INPUT8 (G) 2 INPUT8 (X) 3 INPUT8 (Y)
CH1-9 CN109 1 INPUT9 (G) 2 INPUT9 (X) 3 INPUT9 (Y)
CH1-10 CN110 1 INPUT10 (G) 2 INPUT10 (X) 3 INPUT10 (Y)
CH1-11 CN111 1 INPUT11 (G) 2 INPUT11 (X) 3 INPUT11 (Y)
CH1-12 CN112 1 INPUT12 (G) 2 INPUT12 (X) 3 INPUT12 (Y)
OUT CN113 1 OUTPUT (G) 2 OUTPUT (X) 3 OUTPUT (Y)
REF VIDEO INPUT CN114 1 REF (G) 2 REF (X)
CH2-1 CN201 1 INPUT1 (G) 2 INPUT1 (X) 3 INPUT1 (Y)
CH2-2 CN202 1 INPUT2 (G) 2 INPUT2 (X) 3 INPUT2 (Y)
CH2-3 CN203 1 INPUT3 (G) 2 INPUT3 (X) 3 INPUT3 (Y)
CH2-4 CN204 1 INPUT4 (G) 2 INPUT4 (X) 3 INPUT4 (Y)
CH2-5 CN205 1 INPUT5 (G) 2 INPUT5 (X) 3 INPUT5 (Y)
CH2-6 CN206 1 INPUT6 (G) 2 INPUT6 (X) 3 INPUT6 (Y)
CH2-7 CN207 1 INPUT7 (G) 2 INPUT7 (X) 3 INPUT7 (Y)
CH2-8 CN208 1 INPUT8 (G) 2 INPUT8 (X) 3 INPUT8 (Y)
CH2-9 CN209 1 INPUT9 (G) 2 INPUT9 (X) 3 INPUT9 (Y)
CH2-10 CN210 1 INPUT10 (G) 2 INPUT10 (X) 3 INPUT10 (Y)
CH2-11 CN211 1 INPUT11 (G) 2 INPUT11 (X) 3 INPUT11 (Y)
CH2-12 CN212 1 INPUT12 (G) 2 INPUT12 (X) 3 INPUT12 (Y)
OUT CN213 1 OUTPUT (G) 2 OUTPUT (X) 3 OUTPUT (Y)
REF VIDEO INPUT CN214 1 REF (G) 2 REF (X)
CN101 ~ 113
CN201 ~ 213
1 (G)
2 (X)
3 (Y)
CN114, 214
1 (G)
2 (X)
CN1F *1
CN1M *2
CN2F *1
CN2M *2
ASW-18L
CN3F *1
CN1M *3
CN4 *3
CN1 *4
IF-278
CN4F *1
CN2M *3
CN5 *3
CN1 *5
ASW-18F
RY-9
CN12M
+5V 1
NC 2
GND 3
MB-264 (274)
CN1
1 +5V
2 NC
3 GND
LE-76
Refer to Schematic Diagram
MB-264 (274) BOARD *1
ASW-18L BOARD *2
ASW-18F BOARD *3
IF-278 BOARD *4
RY-9 BOARD *5
FRAME
BVS-A1201

BKS-R1210
SW-354; SWITCH BOARD

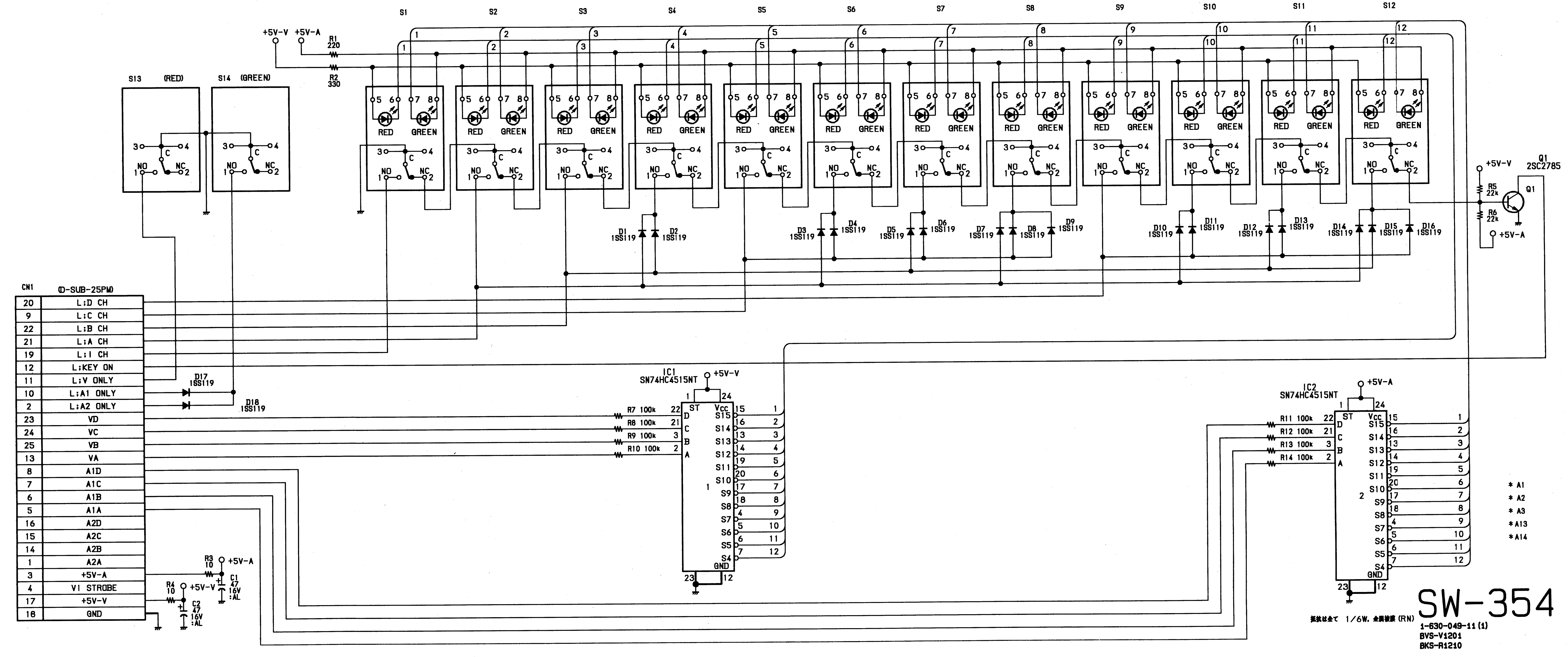
1

2

3

4

5


S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13 (RED)
S14 (GREEN)
+5V-V
+5V-A
R1 220
R2 330
RED
GREEN
3 C 4
NO NC
1 2
5 6 7 8
D1 1SS119
D2 1SS119
D3 1SS119
D4 1SS119
D5 1SS119
D6 1SS119
D7 1SS119
D8 1SS119
D9 1SS119
D10 1SS119
D11 1SS119
D12 1SS119
D13 1SS119
D14 1SS119
D15 1SS119
D16 1SS119
D17 1SS119
D18 1SS119
Q1 2SC2785
R5 22k
R6 22k
CN1 (D-SUB-25PM)
20 L;D CH
9 L;C CH
22 L;B CH
21 L;A CH
19 L;I CH
12 L;KEY ON
11 L;V ONLY
10 L;A1 ONLY
2 L;A2 ONLY
23 VD
24 VC
25 VB
13 VA
8 A1D
7 A1C
6 A1B
5 A1A
16 A2D
15 A2C
14 A2B
1 A2A
3 +5V-A
4 VI STROBE
17 +5V-V
18 GND
R3 10
R4 10
C1 47 16V :AL
C2 47 16V :AL
IC1 SN74HC4515NT
IC2 SN74HC4515NT
R7 100k
R8 100k
R9 100k
R10 100k
R11 100k
R12 100k
R13 100k
R14 100k
ST D C B A
Vcc S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 GND
*A1
*A2
*A3
*A13
*A14

SW-354

抵抗は全て 1/6W, 金属被膜 (RN)

1-630-049-11 (1)
BVS-V1201
BKS-R1210

SECTION 7
PRINTED WIRING BOARDS

ASW-18; AUDIO SWITCH BOARD

BVS-A1201

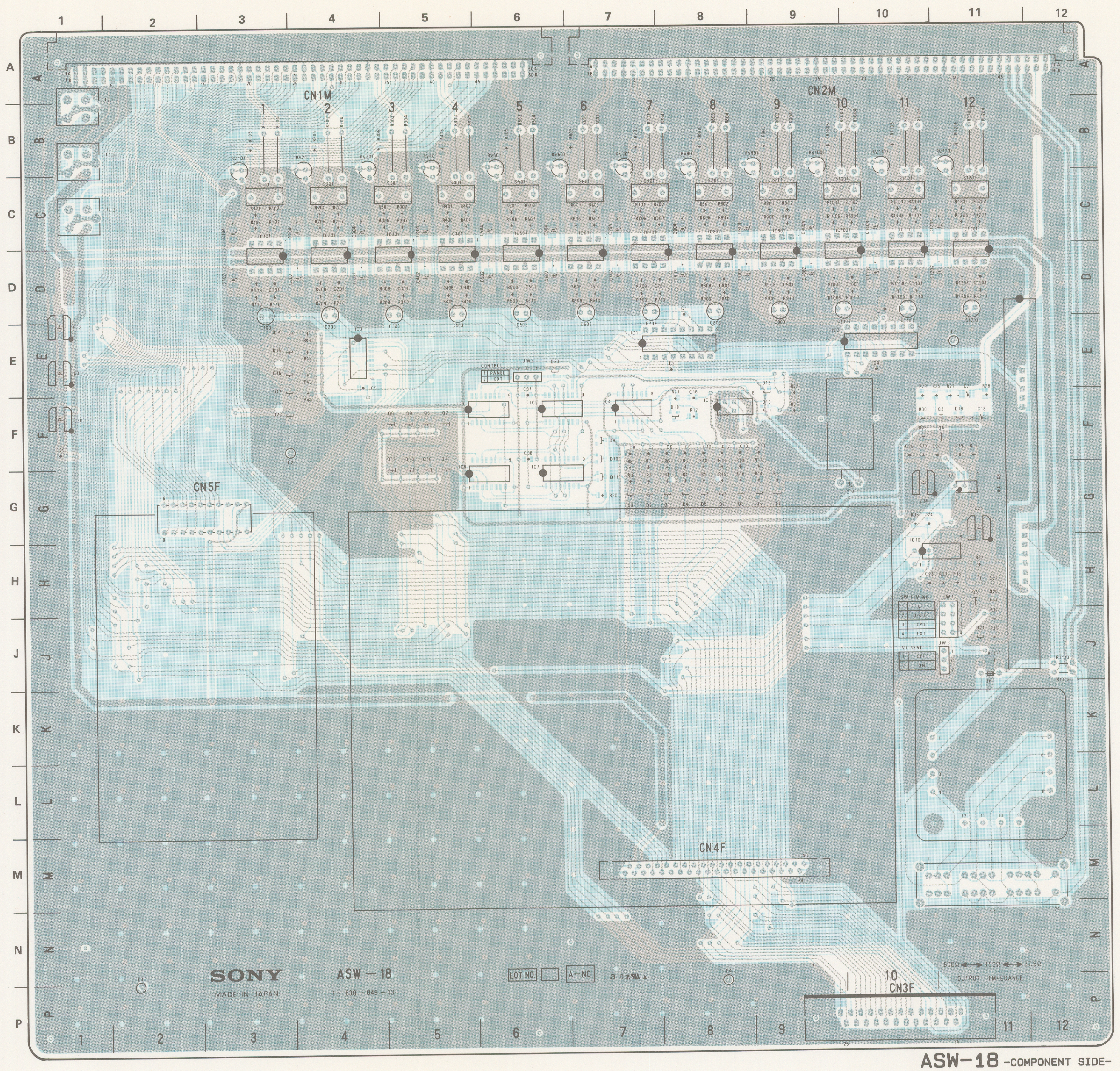
ASW-18L (1-630-046-13)

CN1	A - 4
CN2	A - 9
D14	E - 3
D15	E - 3
D16	E - 3
D17	E - 3
E1	E - 11
E2	F - 3
E3	N - 2
E4	N - 8
FL1	A - 2
FL2	B - 2
FL3	C - 2
IC1	E - 7
IC2	E - 9
IC3	E - 4
IC101	C - 3
IC201	C - 4
IC301	C - 5
IC401	C - 5
IC501	C - 6
IC601	C - 7
IC701	C - 7
IC801	C - 8
IC901	C - 9
IC1001	C - 10
IC1101	C - 10
IC1201	C - 11
RV101	B - 3
RV201	B - 4
RV301	B - 4
RV401	B - 5
RV501	B - 6
RV601	B - 6
RV701	B - 7
RV801	B - 8
RV901	B - 9
RV1001	B - 9
RV1101	B - 10
RV1201	B - 11
S1	N - 11
S101	C - 3
S201	C - 4
S301	C - 5
S401	C - 5
S501	C - 6
S601	C - 7
S701	C - 7
S801	C - 8
S901	C - 9
S1001	C - 10
S1101	C - 10
S1201	C - 11
TH1	J - 11
T1	M - 11

BVS-A1201

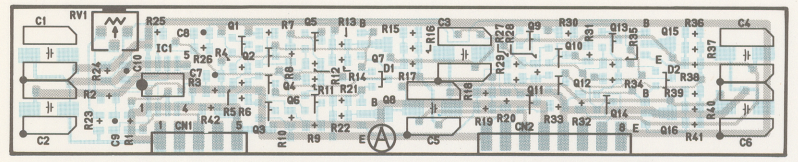
ASW-18F (1-630-046-13)

CN1	A - 4
CN2	A - 9
CN4	M - 8
CN5	G - 3
D1	G - 8
D2	G - 7
D3	G - 7
D4	G - 8
D5	G - 8
D6	G - 9
D7	G - 8
D8	G - 8
D9	F - 7
D10	F - 7
D11	G - 7
D12	E - 9
D13	F - 9
D14	E - 3
D15	E - 3
D16	E - 3
D17	E - 3
D18	F - 8
D19	F - 11
D20	H - 11
D21	J - 11
D22	F - 3
D23	E - 6
E1	E - 11
E2	F - 3
E3	N - 2
E4	N - 8
FL1	A - 2
FL2	B - 2
FL3	C - 2
IC1	E - 7
IC2	E - 9
IC3	E - 4
IC4	F - 7
IC5	F - 6
IC6	F - 5
IC7	G - 6
IC8	G - 5
IC9	G - 11
IC10	H - 10
IC17	F - 8
IC101	C - 3
IC201	C - 4
IC301	C - 5
IC401	C - 5
IC501	C - 6
IC601	C - 7
IC701	C - 7
IC801	C - 8
IC901	C - 9
IC1001	C - 10
IC1101	C - 10
IC1201	C - 11
JW1	H - 11
JW2	E - 6
JW3	J - 11
Q1	G - 9
Q3	F - 11
Q4	F - 11
Q5	H - 11
Q6	F - 5
Q7	F - 5
Q8	F - 5
Q9	F - 5
Q10	F - 5
Q11	F - 5
Q12	F - 5
Q13	F - 5
RV101	B - 3
RV201	B - 4
RV301	B - 4
RV401	B - 5
RV501	B - 6
RV601	B - 6
RV701	B - 7
RV801	B - 8
RV901	B - 9
RV1001	B - 9
RV1101	B - 10
RV1201	B - 11
S1	N - 11
S101	C - 3
S201	C - 4
S301	C - 5
S401	C - 5
S501	C - 6
S601	C - 7
S701	C - 7
S801	C - 8
S901	C - 9
S1001	C - 10
S1101	C - 10
S1201	C - 11
TH1	J - 11
T1	M - 11

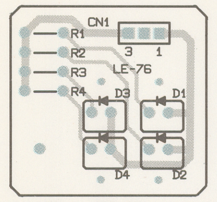


ASW-18 -COMPONENT SIDE-
1-630-046-11, 12, 13 (1)
BVS-A1201

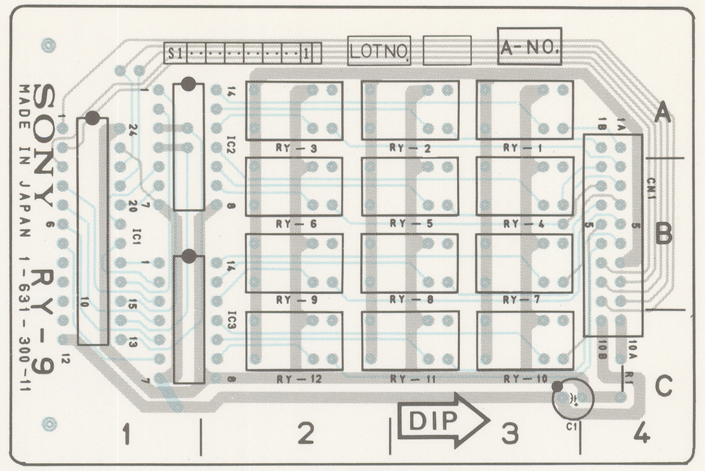
AA-48; AUDIO AMPLIFIER BOARD
IF-278; SERIAL INTERFACE BOARD
LE-76; LED BOARD
RY-9; TALLY BOARD


RV1
C1
C2
CN1
CN2
IC1
R19
R20
R33
R32
Q11
Q12
Q14
Q16
D2
R34
R38
R39
R40
R41
C5
C6
A

AA-48 -A SIDE-
1-630-043-11, 12 (1)
BVS-A1201
BVS-V1201

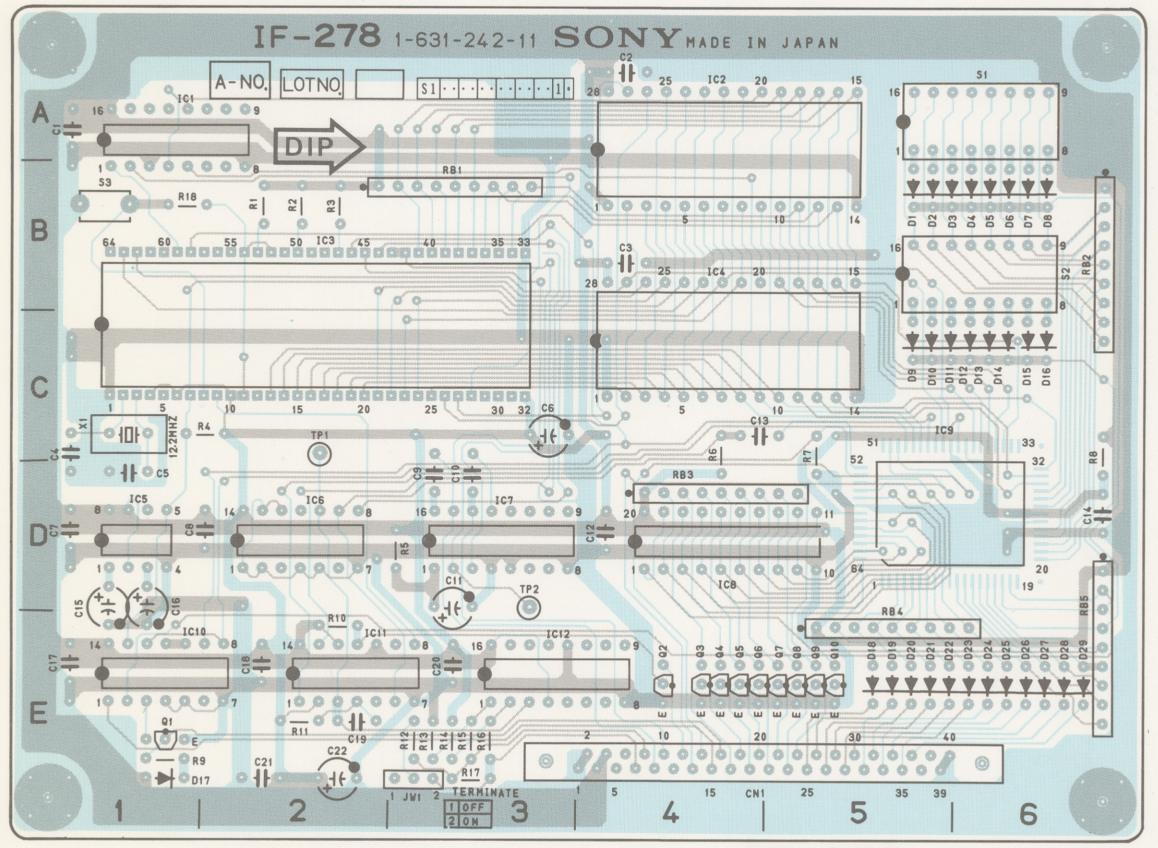

CN1
R1
R2
R3
R4
LE-76
D1
D2
D3
D4

LE-76
-COMPONENT SIDE-
1-631-489-11 (1)
BVS-A1201
BVS-V1201
BVS-A1212
BVS-V1212


SONY
MADE IN JAPAN 1-631-300-11
RY-9
S1
LOTNO
A-NO.
IC1
RY-1
RY-2
RY-3
RY-4
RY-5
RY-6
RY-7
RY-8
RY-9
RY-10
RY-11
RY-12
C1
DIP
A
B
C
1
2
3
4

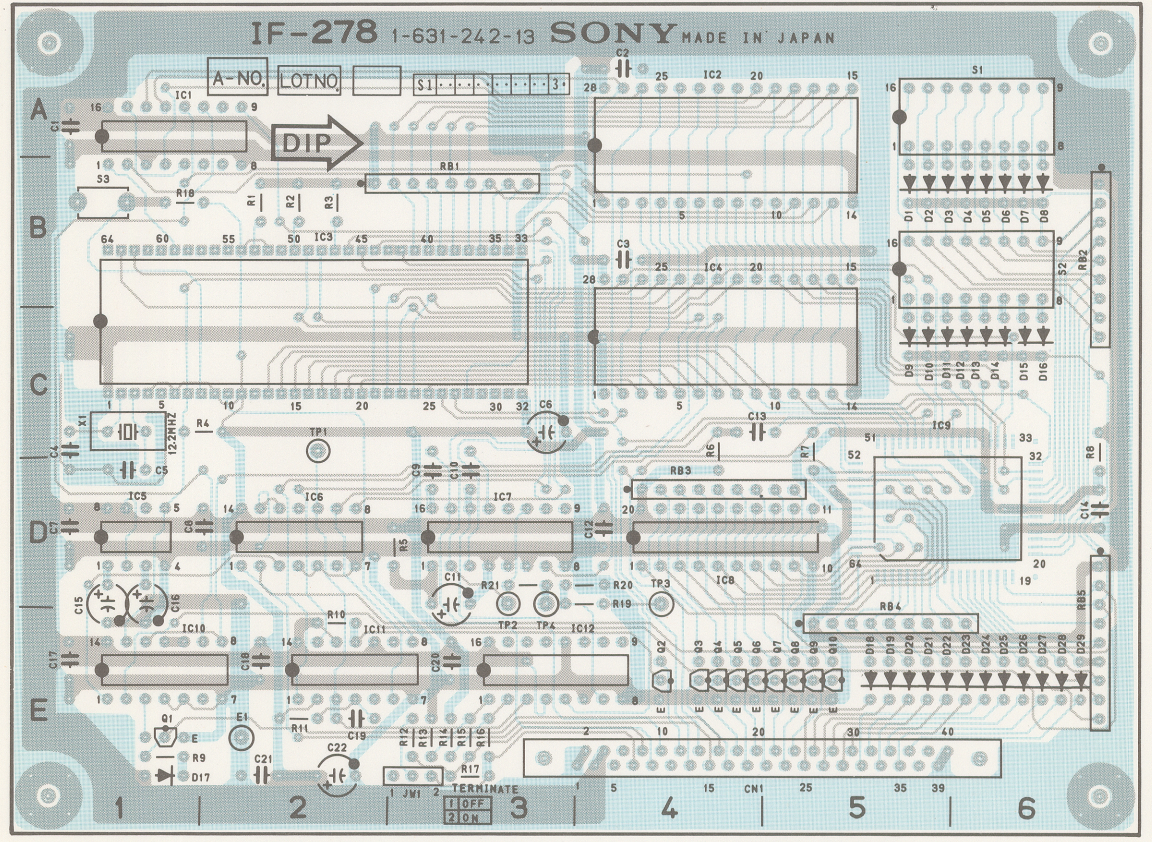
RY-9 -COMPONENT SIDE-
1-631-300-11 (1)
BVS-V1201

S/N 10001 TO 10015 (E)
S/N 20001 TO 20005 (J)


IF-278 1-631-242-11 SONY MADE IN JAPAN
A-NO.
LOTNO
S1
DIP
IC1
IC2
IC3
IC4
CN1
TERMINATE
A
B
C
D
E
1
2
3
4
5
6

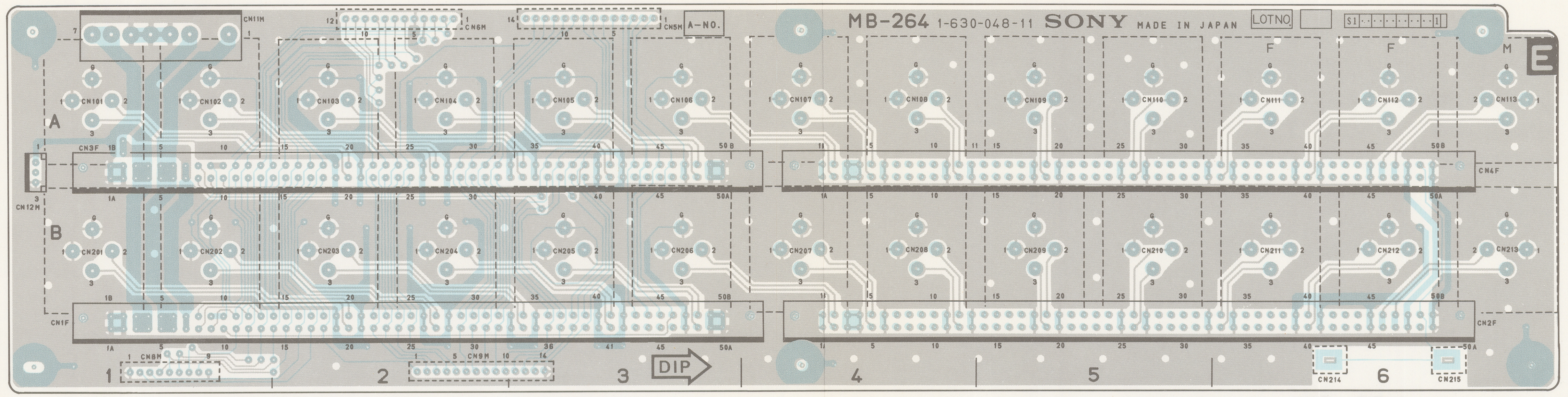
IF-278 -COMPONENT SIDE-
1-631-242-11 (1)
BVS-A1201
BVS-V1201

S/N 10016 AND HIGHER (E)
S/N 20006 AND HIGHER (J)


IF-278 1-631-242-13 SONY MADE IN JAPAN
A-NO.
LOTNO
S1
DIP
IC1
IC2
IC3
IC4
CN1
TERMINATE
A
B
C
D
E
1
2
3
4
5
6

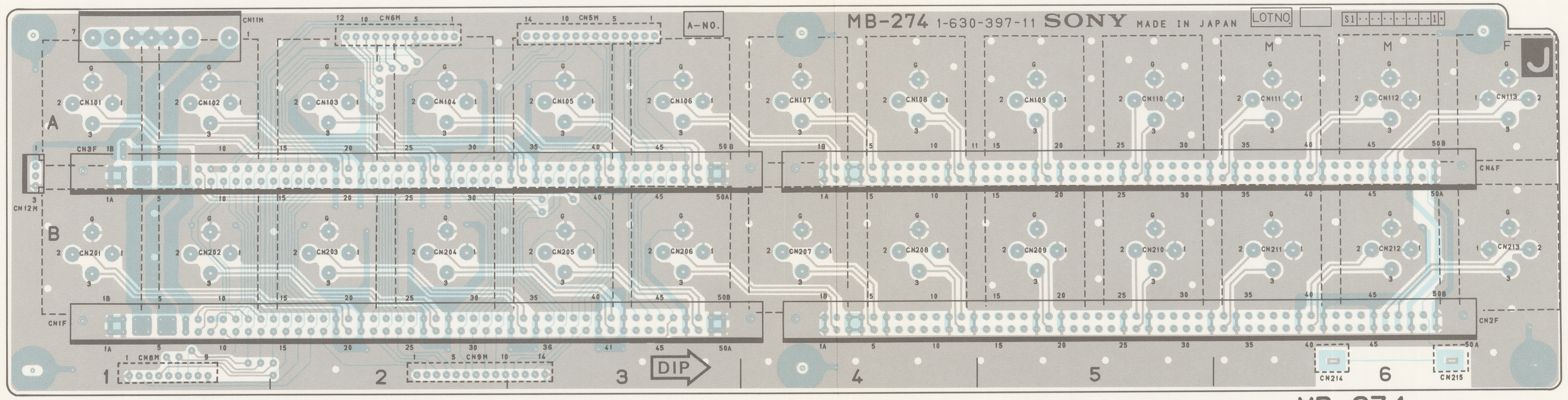
IF-278 -COMPONENT SIDE-
1-631-242-12, 13 (1)
BVS-A1201
BVS-V1201

MB-264; MOTHER BOARD (FOR E)


MB-264 1-630-048-11 SONY MADE IN JAPAN
LOTNO
A-NO.
E
A
B
CN101
CN102
CN103
CN104
CN105
CN106
CN107
CN108
CN109
CN110
CN111
CN112
CN113
CN201
CN202
CN203
CN204
CN205
CN206
CN207
CN208
CN209
CN210
CN211
CN212
CN213
CN214
CN215
CN3F
CN4F
CN1F
CN2F
CN5M
CN6M
CN8M
CN9M
CN11M
CN12M
F
M
DIP
1
2
3
4
5
6

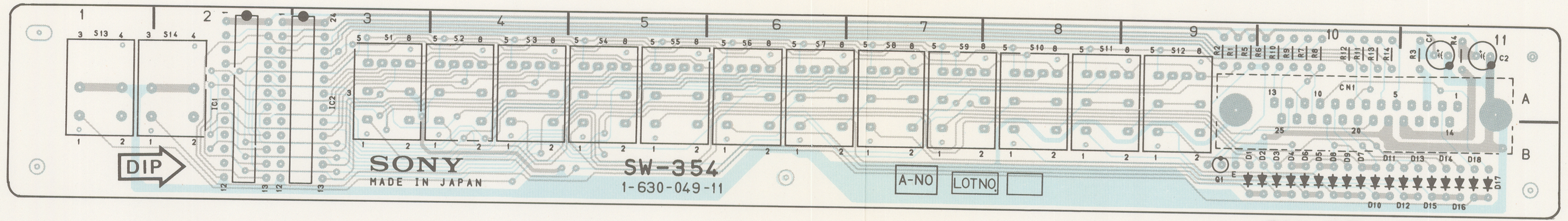
MB-264 -COMPONENT SIDE-
1-630-048-11 (1)
BVS-A1201

MB-274; MOTHER BOARD (FOR J)


MB-274 1-630-397-11 SONY MADE IN JAPAN
LOTNO
A-NO.
J
A
B
CN101
CN102
CN103
CN104
CN105
CN106
CN107
CN108
CN109
CN110
CN111
CN112
CN113
CN201
CN202
CN203
CN204
CN205
CN206
CN207
CN208
CN209
CN210
CN211
CN212
CN213
CN214
CN215
CN3F
CN4F
CN1F
CN2F
CN5M
CN6M
CN8M
CN9M
CN11M
CN12M
M
F
DIP
1
2
3
4
5
6

MB-274 -COMPONENT SIDE-
1-630-397-11 (1)
BVS-A1201

BKS-R1210
SW-354; SWITCH BOARD


1
2
3
4
5
6
7
8
9
10
11
A
B
S13
S14
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
IC1
IC2
DIP
SONY
MADE IN JAPAN
SW-354
1-630-049-11
A-NO
LOTNO
CN1
Q1
E
D1
D2
D3
D4
D6
D5
D8
D9
D7
D11
D13
D14
D18
D17
D10
D12
D15
D16

SW-354 -COMPONENT SIDE-
1-630-049-11 (1)
BVS-V1201
BKS-R1210

SECTION 8
SPARE PARTS AND FIXTURE

8-1. PARTS INFORMATION

(1) The shaded and ⚠ -marked components are critical to safety.
Replace only with the same components as specified.

(2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape and outside view from the parts which are used in the unit. This is due to "accommodating improved parts and/or engineering changes" or "standardization of genuine parts".

- This manual's exploded views and electrical spare parts lists indicate the part numbers of "the present standardized genuine parts".
- Regarding engineering part changes by our engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Item with no part number and/or no description are not stocked because they are seldom required for routine service.

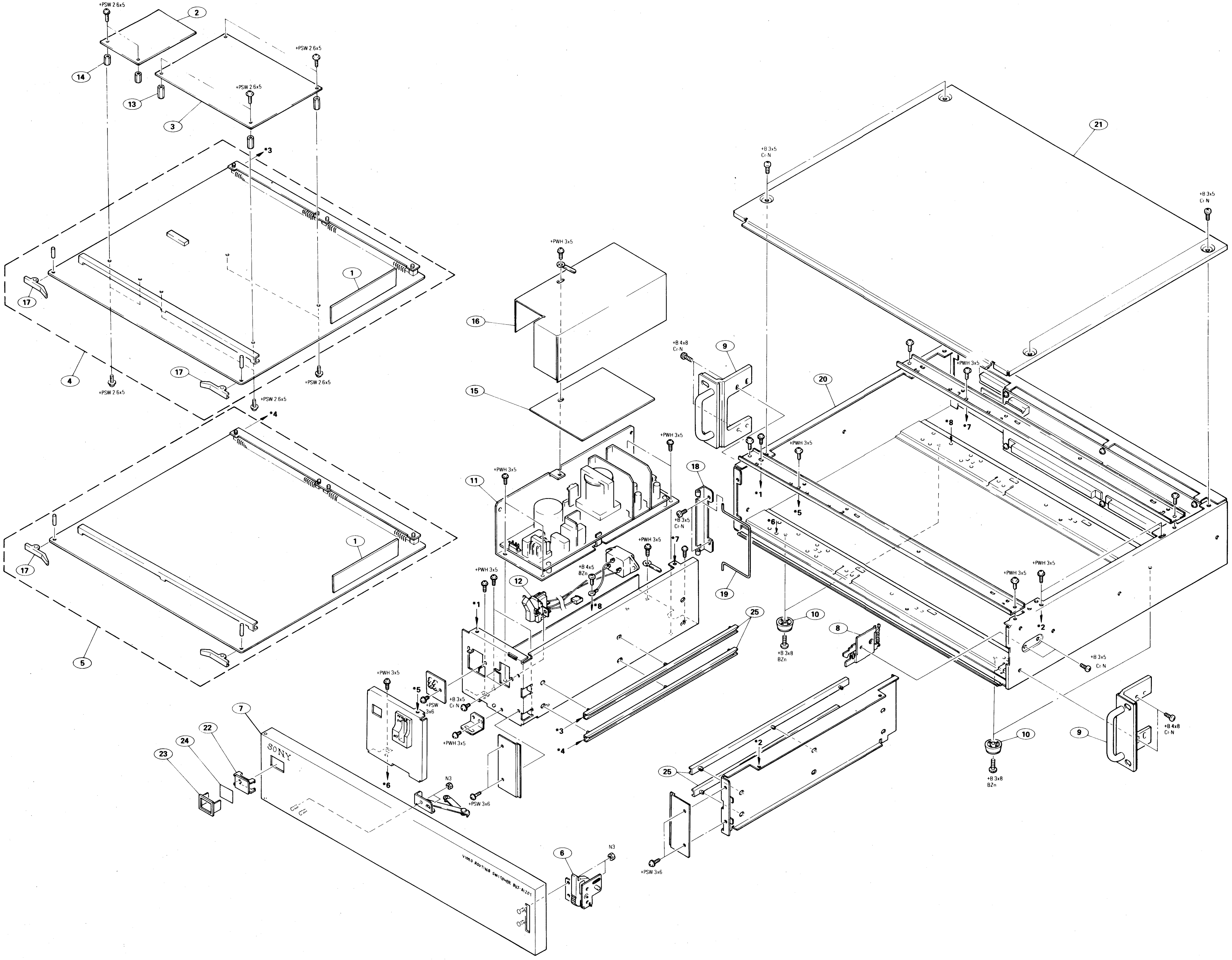
(5) (T) after a spring description is shown on the exploded views in order to indicate the number of a spring turn required for the use.
(Example)
Spring, tension (24T); This spring must be cut at its 24th turn for actual use.

8-2. EXPLODED VIEW

- Exploded views are composed of the following blocks.

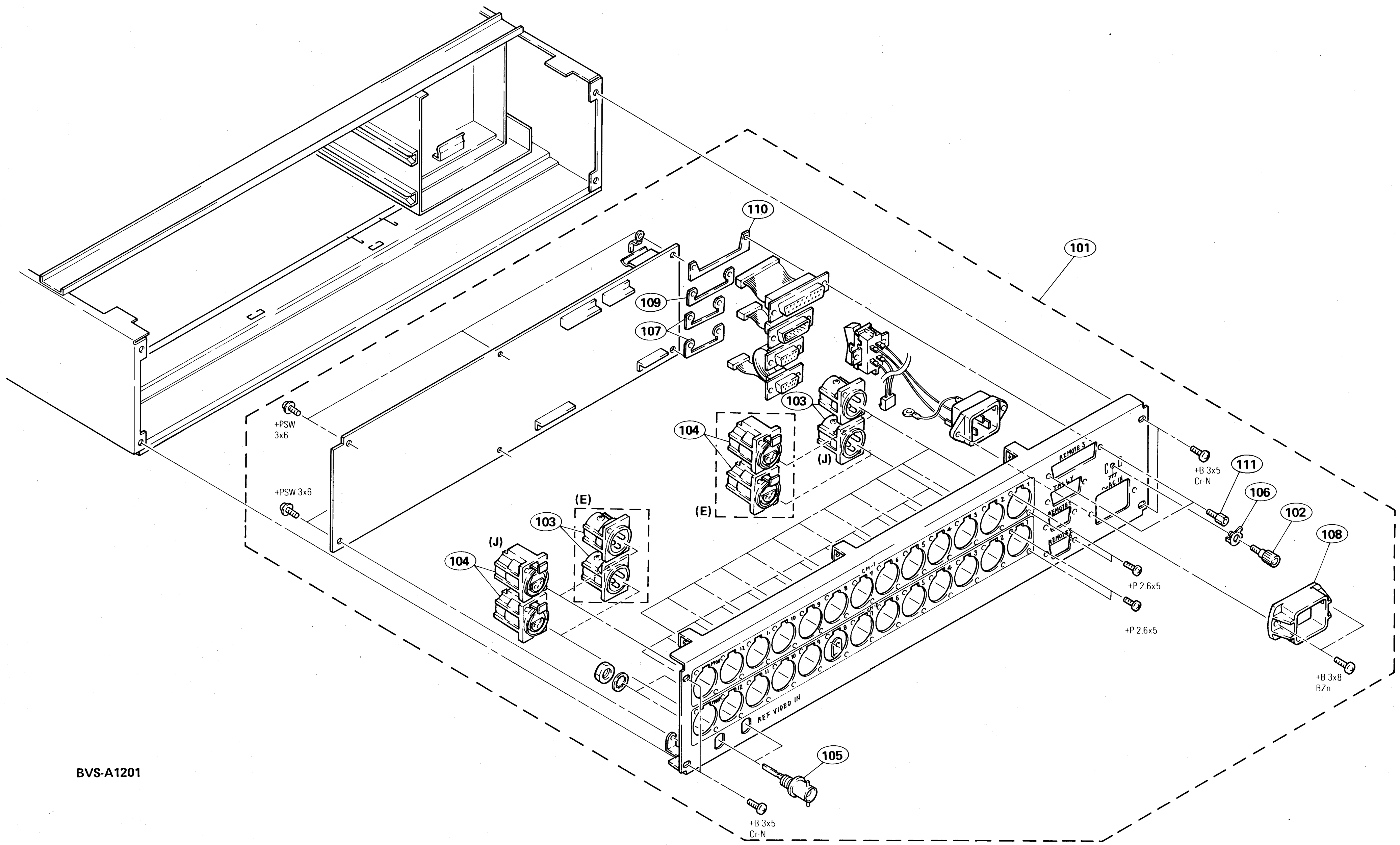
(1) Chassis
(2) Rear Panel
(3) BKS-R1210

Chassis


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
+PSW 2.6x5
+PWH 3x5
+B 3x5 Cr N
+B 4x8 Cr N
+B 4x5 BZn
+B 3x8 BZn
+PSW 3x6
N3
*1
*2
*3
*4
*5
*6
*7
*8
SONY

No.		Part No.	SP	Description
1		A-6261-054-A	o	MOUNTED CIRCUIT BOARD, AA-48
2		A-6267-181-A	o	MOUNTED CIRCUIT BOARD, RY-9
3		A-6267-182-A	o	MOUNTED CIRCUIT BOARD, IF-278
4		A-6279-470-A	o	MOUNTED CIRCUIT BOARD, ASW-18F
5		A-6279-472-A	o	MOUNTED CIRCUIT BOARD, ASW-18L
6		A-6279-484-A	o	HANDLE ASSY, DOOR
7		X-2127-211-1	o	PANEL (A1) ASSY, F
8		X-2127-216-1	o	LOCK ASSY, DOOR
9		X-2182-903-1	o	ANGLE ASSY (2U), RACK
10		X-3556-910-1	s	FOOT ASSY, MF
11	⚠	1-413-461-11	s	REGULATOR, SWITCHING (ED-110)
12	⚠	1-570-384-11	s	SWITCH, ROCKER (AC POWER)
13		2-130-288-01	o	SUPPORT
14		2-130-288-21	o	SUPPORT
15		2-139-022-01	o	SHEET, INSULATING
16		2-139-027-01	o	CASE (B), SHIELD
17		2-182-909-02	o	LEVER PRINTED CIRCUT BOARD
18		2-182-920-01	o	HINGE (2U), HINGE
19		2-182-921-02	o	SHAFT (2U), HINGE
20		2-182-934-02	o	CHASSIS
21		2-182-935-02	o	PLATE (D350), TOP
22		2-249-303-01	o	WINDOW (2), REMOTE CONTROL
23		2-249-304-02	o	FRAME(2),WINDOW,REMOTE CONTROL
24		2-249-353-01	o	COVER, LAMP
25		3-673-676-32	o	RAIL, PRINTED CIRCUIT BOARD GUIDE

Rear Panel

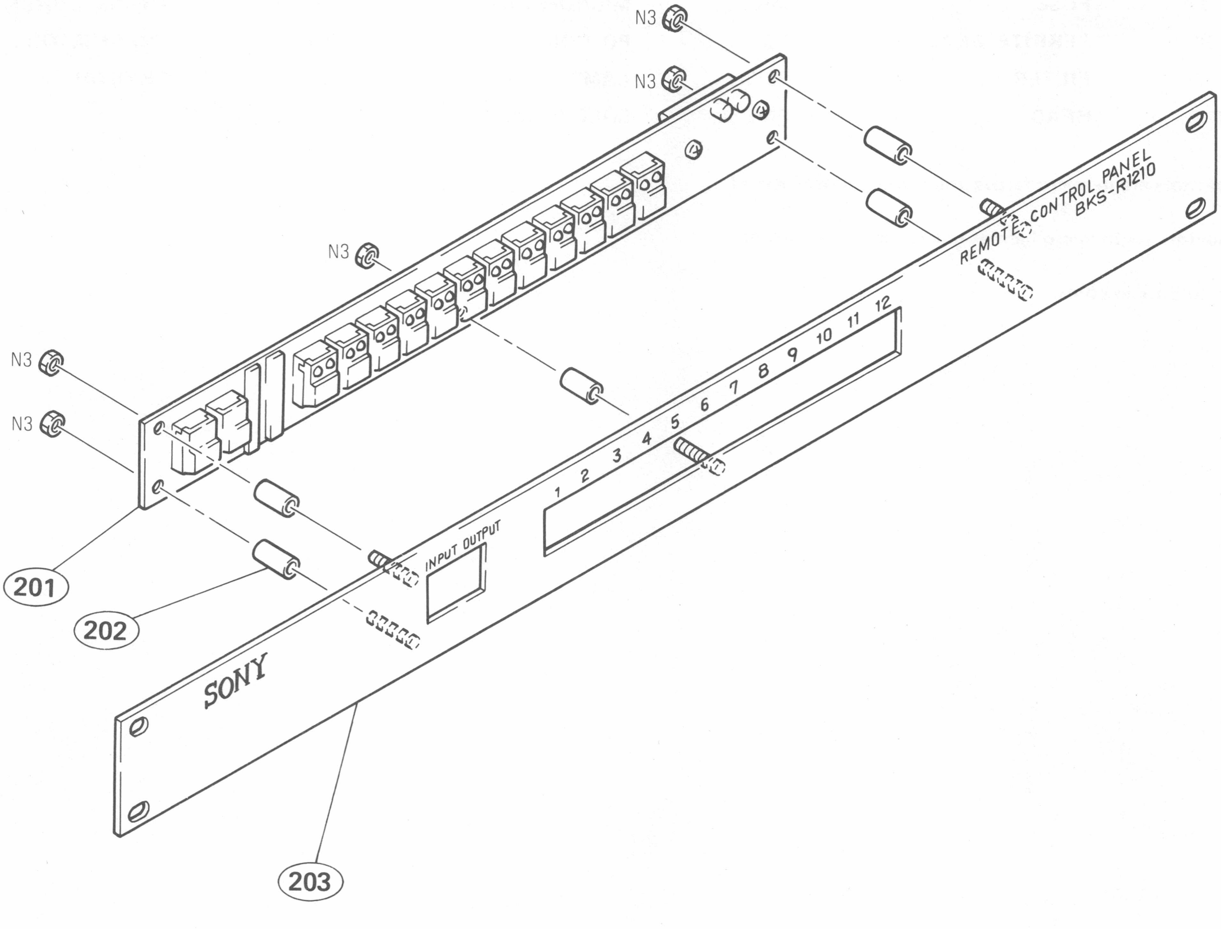

110
101
109
107
103
104
(E)
(J)
103
(E)
104
(J)
+PSW 3x6
+PSW 3x6
REF VIDEO IN
105
+B 3x5 Cr-N
+B 3x5 Cr-N
111
106
102
108
+P 2.6x5
+P 2.6x5
+B 3x8 BZn

BVS-A1201

No.	Part No.	SP	Description
101	A-6274-286-A	o	PANEL (A1) ASSY, REAR
102	X-2068-004-1	s	TERMINAL ASSY
103	1-565-281-11	o	CONNECTOR, XLR TYPE 3P
104	1-565-282-11	o	CONNECTOR, XLR TYPE 3P
105	1-568-812-31	s	COMMECTOR, BNC
106	2-068-008-01	s	WASHER
107	2-139-018-01	s	NUT (D SUB 9P), PLATE
108	2-990-241-01	o	HOLDER (A), PLUG
109	3-659-858-11	s	NUT (D-15), LEAF
110	4-604-023-11	o	NUT (D DIB), PLATE
111	4-612-636-01	s	SCREW, CONNECTOR FITTING

BKS-R1210

No.	Parts No.	SP	Description
201	A-6267-176-A	o	MOUNTED CIRCUIT BOARD, SW-354
202	2-130-283-01	o	SPACER
203	2-130-286-01	o	PANEL, REMOTE CONTROL


N3
N3
N3
N3
N3
REMOTE CONTROL PANEL
BKS-R1210
1
2
3
4
5
6
7
8
9
10
11
12
INPUT OUTPUT
SONY
201
202
203

8-3. ELECTRICAL PARTS LIST

ABBREVIATIONS

Ref. No.	Description	Ref. No.	Description	Ref. No.	Description
C□□, CT□□	CAPACITOR	IC□□	IC	Q□□	TRANSISTOR
CF□□	CERAMIC FILTER	J□□	JACK	R□□, RV□□	RESISTOR
CN□□	CONNECTOR	L□□	INDUCTOR	RY□□	RELAY
D□□	DIODE	M□□	MOTOR	S□□, SW□□	SWITCH
DL□□	DELAY LINE	ME□□	METER	SB□□	SOLAR BATTERY
F□□	FUSE	MIC□□	MICROPHONE	T□□	TRANSFORMER
FB□□	FERRITE BEAD	PG□□	PG COIL	TH□□	THERMISTOR
FL□□	FILTER	PL□□	LAMP	X□□	CRYSTAL
H□□	HEAD	PM□□	SOLENOIDE		

All capacitors are in micro farads unless otherwise specified.

All inductors are in micro henries unless otherwise specified.

All resistors are in ohms.

General Purpose Electrical Parts List

Parts that are not listed in the "reference numbers order list" are shown in following list.
Reference numbers are omitted.

CAPACITOR, CERAMIC

Part No.	SP	Description
1-163-083-00	s	CAP, CHIP CERAMIC 1pF +-0.25pF 5
1-163-085-00	s	CAP, CHIP CERAMIC 2pF +-0.25pF 5
1-163-087-00	s	CAP, CHIP CERAMIC 4pF +-0.25pF 5
1-163-089-00	s	CAP, CHIP CERAMIC 6pF +-0.5pF 50
1-163-091-00	s	CAP, CHIP CERAMIC 8pF +-0.5pF 50
1-163-093-00	s	CAP, CHIP CERAMIC 10pF 5% 50V
1-163-097-00	s	CAP, CHIP CERAMIC 15pF 5% 50V
1-163-101-00	s	CAP, CHIP CERAMIC 22pF 5% 50V
1-163-105-00	s	CAP, CHIP CERAMIC 33pF 5% 50V
1-163-109-00	s	CAP, CHIP CERAMIC 47pF 5% 50V
1-163-113-00	s	CAP, CHIP CERAMIC 68pF 5% 50V
1-163-117-00	s	CAP, CHIP CERAMIC 100pF 5% 50V
1-163-121-00	s	CAP, CHIP CERAMIC 150pF 5% 50V
1-163-125-00	s	CAP, CHIP CERAMIC 220pF 5% 50V
1-163-129-00	s	CAP, CHIP CERAMIC 330pF 5% 50V
1-163-133-00	s	CAP, CHIP CERAMIC 470pF 5% 50V
1-163-137-00	s	CAP, CHIP CERAMIC 680pF 5% 50V
1-163-141-00	s	CAP, CHIP CERAMIC 1000pF 5% 50V
1-163-145-00	s	CAP, CHIP CERAMIC 1500pF 10% 50V
1-163-013-00	s	CAP, CHIP CERAMIC 2200pF 10% 50V
1-163-015-00	s	CAP, CHIP CERAMIC 3300pF 10% 50V
1-163-017-00	s	CAP, CHIP CERAMIC 4700pF 10% 50V
1-163-019-00	s	CAP, CHIP CERAMIC 6800pF 10% 50V
1-163-021-00	s	CAP, CHIP CERAMIC 0.01 10% 50V
1-163-023-00	s	CAP, CHIP CERAMIC 0.015 10% 50V
1-163-034-00	s	CAP, CHIP CERAMIC 0.033 50V
1-163-035-00	s	CAP, CHIP CERAMIC 0.047 50V
1-163-036-00	s	CAP, CHIP CERAMIC 0.068 50V
1-163-038-00	s	CAP, CHIP CERAMIC 0.1 50V

CAPACITOR, CHIP TANTALUM

Part No.	SP	Description
1-135-070-00	s	CAP, CHIP TANTALUM 0.1 10% 35V
1-135-071-21	s	CAP, CHIP TANTALUM 0.15 10% 35V
1-135-072-21	s	CAP, CHIP TANTALUM 0.22 10% 35V
1-135-073-00	s	CAP, CHIP TANTALUM 0.33 10% 35V
1-135-083-00	s	CAP, CHIP TANTALUM 0.47 10% 25V
1-135-074-21	s	CAP, CHIP TANTALUM 0.47 10% 35V
1-135-087-21	s	CAP, CHIP TANTALUM 0.68 10% 20V
1-135-075-21	s	CAP, CHIP TANTALUM 0.68 10% 35V
1-135-091-21	s	CAP, CHIP TANTALUM 1.0 10% 16V
1-135-076-21	s	CAP, CHIP TANTALUM 1.0 10% 35V
1-135-084-21	s	CAP, CHIP TANTALUM 1.5 10% 25V
1-135-077-21	s	CAP, CHIP TANTALUM 1.5 10% 35V
1-135-088-21	s	CAP, CHIP TANTALUM 2.2 10% 20V
1-135-078-21	s	CAP, CHIP TANTALUM 2.2 10% 35V
1-135-092-21	s	CAP, CHIP TANTALUM 3.3 10% 16V
1-135-079-21	s	CAP, CHIP TANTALUM 3.3 10% 35V
1-135-096-21	s	CAP, CHIP TANTALUM 4.7 10% 10V
1-135-085-21	s	CAP, CHIP TANTALUM 4.7 10% 25V
1-135-100-21	s	CAP, CHIP TANTALUM 6.8 10% 6.3V
1-135-089-21	s	CAP, CHIP TANTALUM 6.8 10% 20V
1-135-093-21	s	CAP, CHIP TANTALUM 10 10% 16V
1-135-097-21	s	CAP, CHIP TANTALUM 15 10% 10V
1-135-101-21	s	CAP, CHIP TANTALUM 22 10% 6.3V
1-135-098-21	s	CAP, CHIP TANTALUM 47 10% 6.3V

RESISTOR, CHIP METAL

Part No.	SP	Description
1-216-603-11	s	RES, CHIP METAL 10 1% 1/10W
1-216-605-11	s	RES, CHIP METAL 12 1% 1/10W
1-216-609-11	s	RES, CHIP METAL 18 1% 1/10W
1-216-611-11	s	RES, CHIP METAL 22 1% 1/10W
1-216-614-11	s	RES, CHIP METAL 30 1% 1/10W
1-216-617-11	s	RES, CHIP METAL 39 1% 1/10W
1-216-619-11	s	RES, CHIP METAL 47 1% 1/10W
1-216-620-11	s	RES, CHIP METAL 51 1% 1/10W
1-216-623-11	s	RES, CHIP METAL 68 1% 1/10W
1-216-624-11	s	RES, CHIP METAL 75 1% 1/10W
1-216-625-11	s	RES, CHIP METAL 82 1% 1/10W
1-216-626-11	s	RES, CHIP METAL 91 1% 1/10W
1-216-627-11	s	RES, CHIP METAL 100 1% 1/10W
1-216-629-11	s	RES, CHIP METAL 120 1% 1/10W
1-216-631-11	s	RES, CHIP METAL 150 1% 1/10W
1-216-633-11	s	RES, CHIP METAL 180 1% 1/10W
1-216-634-11	s	RES, CHIP METAL 200 1% 1/10W
1-216-635-11	s	RES, CHIP METAL 220 1% 1/10W
1-216-636-11	s	RES, CHIP METAL 240 1% 1/10W
1-216-637-11	s	RES, CHIP METAL 270 1% 1/10W
1-216-638-11	s	RES, CHIP METAL 300 1% 1/10W
1-216-639-11	s	RES, CHIP METAL 330 1% 1/10W
1-216-640-11	s	RES, CHIP METAL 360 1% 1/10W
1-216-641-11	s	RES, CHIP METAL 390 1% 1/10W
1-216-642-11	s	RES, CHIP METAL 430 1% 1/10W
1-216-643-11	s	RES, CHIP METAL 470 1% 1/10W
1-216-644-11	s	RES, CHIP METAL 510 1% 1/10W
1-216-645-11	s	RES, CHIP METAL 560 1% 1/10W
1-216-647-11	s	RES, CHIP METAL 680 1% 1/10W
1-216-648-11	s	RES, CHIP METAL 750 1% 1/10W
1-216-649-11	s	RES, CHIP METAL 820 1% 1/10W
1-216-650-11	s	RES, CHIP METAL 910 1% 1/10W
1-216-651-11	s	RES, CHIP METAL 1.0k 1% 1/10W
1-216-652-11	s	RES, CHIP METAL 1.1k 1% 1/10W
1-216-653-11	s	RES, CHIP METAL 1.2k 1% 1/10W
1-216-655-11	s	RES, CHIP METAL 1.5k 1% 1/10W
1-216-656-11	s	RES, CHIP METAL 1.6k 1% 1/10W
1-216-657-11	s	RES, CHIP METAL 1.8k 1% 1/10W
1-216-658-11	s	RES, CHIP METAL 2k 1% 1/10W
1-216-659-11	s	RES, CHIP METAL 2.2k 1% 1/10W
1-216-660-11	s	RES, CHIP METAL 2.4k 1% 1/10W
1-216-661-11	s	RES, CHIP METAL 2.7k 1% 1/10W
1-216-662-11	s	RES, CHIP METAL 3k 1% 1/10W
1-216-663-11	s	RES, CHIP METAL 3.3k 1% 1/10W
1-216-664-11	s	RES, CHIP METAL 3.5k 1% 1/10W
1-216-665-11	s	RES, CHIP METAL 3.9k 1% 1/10W
1-216-666-11	s	RES, CHIP METAL 4.3k 1% 1/10W
1-216-667-11	s	RES, CHIP METAL 4.7k 1% 1/10W
1-216-668-11	s	RES, CHIP METAL 5.1k 1% 1/10W
1-216-669-11	s	RES, CHIP METAL 5.6k 1% 1/10W
1-216-670-11	s	RES, CHIP METAL 6.2k 1% 1/10W
1-216-671-11	s	RES, CHIP METAL 6.8k 1% 1/10W
1-216-672-11	s	RES, CHIP METAL 7.5k 1% 1/10W
1-216-673-11	s	RES, CHIP METAL 8.2k 1% 1/10W
1-216-674-11	s	RES, CHIP METAL 9.1k 1% 1/10W
1-216-675-11	s	RES, CHIP METAL 10k 1% 1/10W
1-216-676-11	s	RES, CHIP METAL 11k 1% 1/10W
1-216-677-11	s	RES, CHIP METAL 12k 1% 1/10W
1-216-678-11	s	RES, CHIP METAL 13k 1% 1/10W
1-216-679-11	s	RES, CHIP METAL 15k 1% 1/10W
1-216-680-11	s	RES, CHIP METAL 16k 1% 1/10W
1-216-681-11	s	RES, CHIP METAL 18k 1% 1/10W
1-216-682-11	s	RES, CHIP METAL 20k 1% 1/10W
1-216-683-11	s	RES, CHIP METAL 22k 1% 1/10W
1-216-684-11	s	RES, CHIP METAL 24k 1% 1/10W
1-216-685-11	s	RES, CHIP METAL 27k 1% 1/10W
1-216-686-11	s	RES, CHIP METAL 30k 1% 1/10W
1-216-687-11	s	RES, CHIP METAL 33k 1% 1/10W
1-216-688-11	s	RES, CHIP METAL 36k 1% 1/10W
1-216-689-11	s	RES, CHIP METAL 39k 1% 1/10W
1-216-690-11	s	RES, CHIP METAL 43k 1% 1/10W
1-216-691-11	s	RES, CHIP METAL 49k 1% 1/10W
1-216-692-11	s	RES, CHIP METAL 51k 1% 1/10W
1-216-693-11	s	RES, CHIP METAL 56k 1% 1/10W
1-216-694-11	s	RES, CHIP METAL 62k 1% 1/10W
1-216-695-11	s	RES, CHIP METAL 68k 1% 1/10W
1-216-696-11	s	RES, CHIP METAL 75k 1% 1/10W
1-216-697-11	s	RES, CHIP METAL 82k 1% 1/10W
1-216-698-11	s	RES, CHIP METAL 91k 1% 1/10W
1-216-699-11	s	RES, CHIP METAL 100k 1% 1/10W

AA-48 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
2pcs	A-6261-054-A	o	MOUNTED CIRCUIT BOARD, AA-48
C1	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C2	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C3	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C4	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C5	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C6	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C7	1-163-011-11	s	CERAMIC 0.0015uF 10% 50V
C8	1-163-011-11	s	CERAMIC 0.0015uF 10% 50V
CN1	1-568-557-11	s	CONNECTOR, 5P
CN2	1-565-241-11	o	CONNECTOR, 8P
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-800-76	s	DIODE 1SS226
IC1	8-759-710-97	s	IC NJM4565MD
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-216-22	s	TRANSISTOR 2SA1162
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-100-66	s	TRANSISTOR 2SC1623
Q6	8-729-216-22	s	TRANSISTOR 2SA1162
Q7	8-729-106-68	s	TRANSISTOR 2SC1615A-GP
Q8	8-729-106-60	s	TRANSISTOR 2SB1115A
Q9	8-729-216-22	s	TRANSISTOR 2SA1162
Q10	8-729-216-22	s	TRANSISTOR 2SA1162
Q11	8-729-100-66	s	TRANSISTOR 2SC1623
Q12	8-729-100-66	s	TRANSISTOR 2SC1623
Q13	8-729-100-66	s	TRANSISTOR 2SC1623
Q14	8-729-216-22	s	TRANSISTOR 2SA1162
Q15	8-729-106-68	s	TRANSISTOR 2SC1615A-GP
Q16	8-729-106-60	s	TRANSISTOR 2SB1115A
R5	1-216-107-00	s	METAL, CHIP 270K 5% 1/10W
R28	1-216-107-00	s	METAL, CHIP 270K 5% 1/10W
RV1	1-228-471-00	s	RES, ADJ, METAT 1K

ASW-18F BOARD

This board includes the AA-48 board.
See "AA-48 BOARD" for details of it.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6279-470-A	o	MOUNTED CIRCUIT BOARD, ASW-18F
1pc	2-139-014-21	o	LABEL, PC BOARD NAME
1pc	2-182-909-01	o	LEVER, PC BOARD
C14	1-126-635-11	s	ELECT 10000uF 5.5V%
C18	1-135-156-21	s	TANTAL 6.8uF 10% 6.3V
C23	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C25	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C30	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C31	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C32	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C34	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C103	1-124-290-00	s	ELECT 47uF 20% 10V
C203	1-124-290-00	s	ELECT 47uF 20% 10V
C303	1-124-290-00	s	ELECT 47uF 20% 10V
C403	1-124-290-00	s	ELECT 47uF 20% 10V
C503	1-124-290-00	s	ELECT 47uF 20% 10V
C603	1-124-290-00	s	ELECT 47uF 20% 10V
C703	1-124-290-00	s	ELECT 47uF 20% 10V
C803	1-124-290-00	s	ELECT 47uF 20% 10V
C903	1-124-290-00	s	ELECT 47uF 20% 10V
C1003	1-124-290-00	s	ELECT 47uF 20% 10V
C1103	1-124-290-00	s	ELECT 47uF 20% 10V
C1203	1-124-290-00	s	ELECT 47uF 20% 10V
CN4	1-563-239-11	o	PIN, CONNECTOR, 40P
CN5	1-563-114-11	s	CONNECTOR, 20P
CN1M	1-566-986-11	o	CONNECTOR, 100P MALE
CN2M	1-566-986-11	o	CONNECTOR, 100P MALE
D1	8-719-100-05	s	DIODE 1S2837
D2	8-719-100-05	s	DIODE 1S2837
D3	8-719-100-05	s	DIODE 1S2837
D4	8-719-100-05	s	DIODE 1S2837
D5	8-719-100-05	s	DIODE 1S2837
D6	8-719-100-05	s	DIODE 1S2837
D7	8-719-100-05	s	DIODE 1S2837
D8	8-719-100-05	s	DIODE 1S2837
D9	8-719-100-05	s	DIODE 1S2837
D10	8-719-100-05	s	DIODE 1S2837
D11	8-719-100-05	s	DIODE 1S2837
D12	8-719-100-05	s	DIODE 1S2837
D13	8-719-100-05	s	DIODE 1S2837
D14	8-719-100-03	s	DIODE 1S2835
D15	8-719-100-03	s	DIODE 1S2835
D16	8-719-100-03	s	DIODE 1S2835
D17	8-719-100-03	s	DIODE 1S2835
D18	8-719-100-05	s	DIODE 1S2837
D19	8-719-100-05	s	DIODE 1S2837
D20	8-719-100-05	s	DIODE 1S2837
D21	8-719-100-05	s	DIODE 1S2837
D22	8-719-100-03	s	DIODE 1S2835
D23	8-719-100-05	s	DIODE 1S2837
FL1	1-421-773-11	s	FILTER, NOISE REMOVAL
FL2	1-421-773-11	s	FILTER, NOISE REMOVAL
FL3	1-421-773-11	s	FILTER, NOISE REMOVAL
IC1	8-759-999-83	s	IC DG408DJ
IC2	8-759-999-83	s	IC DG408DJ
IC3	8-759-925-92	s	IC SN74HC75NS

Parts taht are not listed in the "reference numbers order list" are shown in the "General Purpose Electrical Parts List".

(ASW-18F BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC4	8-759-925-80	s	IC SN74HC14NS
IC5	8-759-234-24	s	IC TC40175BF
IC6	8-759-200-79	s	IC TC4049BF
IC7	8-759-234-24	s	IC TC40175BF
IC8	8-759-200-79	s	IC TC4049BF
IC9	8-759-987-27	s	IC LM1881M
IC10	8-759-206-28	s	IC TC74HC123F
IC17	8-759-200-74	s	IC TC4023BF
IC101	8-759-905-42	s	IC NE5534P
IC201	8-759-905-42	s	IC NE5534P
IC301	8-759-905-42	s	IC NE5534P
IC401	8-759-905-42	s	IC NE5534P
IC501	8-759-905-42	s	IC NE5534P
IC601	8-759-905-42	s	IC NE5534P
IC701	8-759-905-42	s	IC NE5534P
IC801	8-759-905-42	s	IC NE5534P
IC901	8-759-905-42	s	IC NE5534P
IC1001	8-759-905-42	s	IC NE5534P
IC1101	8-759-905-42	s	IC NE5534P
IC1201	8-759-905-42	s	IC NE5534P
JW1	1-564-950-21	o	PIN, CONNECTOR 8P
JW2	1-564-948-21	o	PIN, CONNECTOR 3P
JW3	1-564-948-21	o	PIN, CONNECTOR 3P
Q1	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
Q3	8-729-107-31	s	TRANSISTOR 2SC3545-T1T44
Q4	8-729-216-22	s	TRANSISTOR 2SA1162
Q5	8-729-100-66	s	TRANSISTOR 2SC1623
Q6	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
Q7	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
Q8	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
Q9	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
Q10	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
Q11	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
Q12	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
Q13	8-729-113-23	s	TRANSISTOR FA1L4L-T1L30
R27	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R28	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R29	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R31	1-216-117-00	s	METAL 680K 5% 1/10W
R35	1-216-103-00	s	METAL, CHIP 180K 5% 1/10W
R70	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R101	1-218-367-91	s	METAL 10K 0.10% 1/16W
R102	1-218-367-91	s	METAL 10K 0.10% 1/16W
R103	1-214-848-00	s	METAL 220 1% 1/2W
R104	1-214-852-00	s	METAL 330 1% 1/2W
R106	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R107	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R201	1-218-367-91	s	METAL 10K 0.10% 1/16W
R202	1-218-367-91	s	METAL 10K 0.10% 1/16W
R203	1-214-848-00	s	METAL 220 1% 1/2W
R204	1-214-852-00	s	METAL 330 1% 1/2W
R206	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R207	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R301	1-218-367-91	s	METAL 10K 0.10% 1/16W
R302	1-218-367-91	s	METAL 10K 0.10% 1/16W
R303	1-214-848-00	s	METAL 220 1% 1/2W
R304	1-214-852-00	s	METAL 330 1% 1/2W
R306	1-218-366-91	s	METAL 3.3K 0.10% 1/16W

(ASW-18F BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R307	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R401	1-218-367-91	s	METAL 10K 0.10% 1/16W
R402	1-218-367-91	s	METAL 10K 0.10% 1/16W
R403	1-214-848-00	s	METAL 220 1% 1/2W
R404	1-214-852-00	s	METAL 330 1% 1/2W
R406	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R407	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R501	1-218-367-91	s	METAL 10K 0.10% 1/16W
R502	1-218-367-91	s	METAL 10K 0.10% 1/16W
R503	1-214-848-00	s	METAL 220 1% 1/2W
R504	1-214-852-00	s	METAL 330 1% 1/2W
R506	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R507	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R601	1-218-367-91	s	METAL 10K 0.10% 1/16W
R602	1-218-367-91	s	METAL 10K 0.10% 1/16W
R603	1-214-848-00	s	METAL 220 1% 1/2W
R604	1-214-852-00	s	METAL 330 1% 1/2W
R606	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R607	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R701	1-218-367-91	s	METAL 10K 0.10% 1/16W
R702	1-218-367-91	s	METAL 10K 0.10% 1/16W
R703	1-214-848-00	s	METAL 220 1% 1/2W
R704	1-214-852-00	s	METAL 330 1% 1/2W
R706	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R707	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R801	1-218-367-91	s	METAL 10K 0.10% 1/16W
R802	1-218-367-91	s	METAL 10K 0.10% 1/16W
R803	1-214-848-00	s	METAL 220 1% 1/2W
R804	1-214-852-00	s	METAL 330 1% 1/2W
R806	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R807	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R901	1-218-367-91	s	METAL 10K 0.10% 1/16W
R902	1-218-367-91	s	METAL 10K 0.10% 1/16W
R903	1-214-848-00	s	METAL 220 1% 1/2W
R904	1-214-852-00	s	METAL 330 1% 1/2W
R906	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R907	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1001	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1002	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1003	1-214-848-00	s	METAL 220 1% 1/2W
R1004	1-214-852-00	s	METAL 330 1% 1/2W
R1006	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1007	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1101	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1102	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1103	1-214-848-00	s	METAL 220 1% 1/2W
R1104	1-214-852-00	s	METAL 330 1% 1/2W
R1106	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1107	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1111	1-216-607-91	s	METAL FILM CHIP 15 0.5% 1/10W
R1201	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1202	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1203	1-214-848-00	s	METAL 220 1% 1/2W
R1204	1-214-852-00	s	METAL 330 1% 1/2W
R1206	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1207	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
RV101	1-238-740-11	s	RES, ADJ, CERMET 20
RV201	1-238-740-11	s	RES, ADJ, CERMET 20

Parts that are not listed in the "reference numbers order list" are shown in the "General Purpose Electrical Parts List".

(ASW-18F BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV301	1-238-740-11	s	RES, ADJ, CERMET 20
RV401	1-238-740-11	s	RES, ADJ, CERMET 20
RV501	1-238-740-11	s	RES, ADJ, CERMET 20
RV601	1-238-740-11	s	RES, ADJ, CERMET 20
RV701	1-238-740-11	s	RES, ADJ, CERMET 20
RV801	1-238-740-11	s	RES, ADJ, CERMET 20
RV901	1-238-740-11	s	RES, ADJ, CERMET 20
RV1001	1-238-740-11	s	RES, ADJ, CERMET 20
RV1101	1-238-740-11	s	RES, ADJ, CERMET 20
RV1201	1-238-740-11	s	RES, ADJ, CERMET 20
S1	1-516-278-00	s	SWITCH, SLIDE
S101	1-552-509-00	s	SWITCH, DIP 1-CKT
S201	1-552-509-00	s	SWITCH, DIP 1-CKT
S301	1-552-509-00	s	SWITCH, DIP 1-CKT
S401	1-552-509-00	s	SWITCH, DIP 1-CKT
S501	1-552-509-00	s	SWITCH, DIP 1-CKT
S601	1-552-509-00	s	SWITCH, DIP 1-CKT
S701	1-552-509-00	s	SWITCH, DIP 1-CKT
S801	1-552-509-00	s	SWITCH, DIP 1-CKT
S901	1-552-509-00	s	SWITCH, DIP 1-CKT
S1001	1-552-509-00	s	SWITCH, DIP 1-CKT
S1101	1-552-509-00	s	SWITCH, DIP 1-CKT
S1201	1-552-509-00	s	SWITCH, DIP 1-CKT
T1	1-427-603-11	s	TRANSFORMER, AUDIO OUTPUT
TH1	1-807-269-11	s	THERMISTOR
Z1	1-562-579-21	s	PLUG, SHORTING
Z2	1-562-579-21	s	PLUG, SHORTING
Z3	1-562-579-21	s	PLUG, SHORTING

ASW-18L BOARD

This board includes the AA-48 board.
See "AA-48 BOARD" for details of it.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6279-472-A	o	MOUNTED CIRCUIT BOARD, ASW-18L
1pc	2-139-014-31	o	LABEL, PC BOARD NAME
1pc	2-182-909-01	o	LEVER, PC BOARD
C30	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C31	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C32	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C103	1-124-290-00	s	ELECT 47uF 20% 10V
C203	1-124-290-00	s	ELECT 47uF 20% 10V
C303	1-124-290-00	s	ELECT 47uF 20% 10V
C403	1-124-290-00	s	ELECT 47uF 20% 10V
C503	1-124-290-00	s	ELECT 47uF 20% 10V
C603	1-124-290-00	s	ELECT 47uF 20% 10V
C703	1-124-290-00	s	ELECT 47uF 20% 10V
C803	1-124-290-00	s	ELECT 47uF 20% 10V
C903	1-124-290-00	s	ELECT 47uF 20% 10V
C1003	1-124-290-00	s	ELECT 47uF 20% 10V
C1103	1-124-290-00	s	ELECT 47uF 20% 10V
C1203	1-124-290-00	s	ELECT 47uF 20% 10V
CN1M	1-566-986-11	o	CONNECTOR, 100P, MALE
CN2M	1-566-986-11	o	CONNECTOR, 100P, MALE
D14	8-719-100-03	s	DIODE 1S2835
D15	8-719-100-03	s	DIODE 1S2835
D16	8-719-100-03	s	DIODE 1S2835
D17	8-719-100-03	s	DIODE 1S2835
FL1	1-421-773-11	s	FILTER, NOISE REMOVAL
FL2	1-421-773-11	s	FILTER, NOISE REMOVAL
FL3	1-421-773-11	s	FILTER, NOISE REMOVAL
IC1	8-759-995-38	s	IC HI1-508-5
IC2	8-759-995-38	s	IC HI1-508-5
IC3	8-759-925-92	s	IC SN74HC75NS
IC101	8-759-905-42	s	IC NE5534P
IC201	8-759-905-42	s	IC NE5534P
IC301	8-759-905-42	s	IC NE5534P
IC401	8-759-905-42	s	IC NE5534P
IC501	8-759-905-42	s	IC NE5534P
IC601	8-759-905-42	s	IC NE5534P
IC701	8-759-905-42	s	IC NE5534P
IC801	8-759-905-42	s	IC NE5534P
IC901	8-759-905-42	s	IC NE5534P
IC1001	8-759-905-42	s	IC NE5534P
IC1101	8-759-905-42	s	IC NE5534P
IC1201	8-759-905-42	s	IC NE5534P
R101	1-218-367-91	s	METAL 10K 0.10% 1/16W
R102	1-218-367-91	s	METAL 10K 0.10% 1/16W
R103	1-214-848-00	s	METAL 220 1% 1/2W
R104	1-214-852-00	s	METAL 330 1% 1/2W
R106	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R107	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R201	1-218-367-91	s	METAL 10K 0.10% 1/16W
R202	1-218-367-91	s	METAL 10K 0.10% 1/16W
R203	1-214-848-00	s	METAL 220 1% 1/2W
R204	1-214-852-00	s	METAL 330 1% 1/2W
R206	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R207	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R301	1-218-367-91	s	METAL 10K 0.10% 1/16W
R302	1-218-367-91	s	METAL 10K 0.10% 1/16W

Parts taht are not listed in the "reference numbers order list" are shown in the "General Purpose Electrical Parts List".

(ASW-18L BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R302	1-218-367-91	s	METAL 10K 0.10% 1/16W
R303	1-214-848-00	s	METAL 220 1% 1/2W
R304	1-214-852-00	s	METAL 330 1% 1/2W
R306	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R307	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R401	1-218-367-91	s	METAL 10K 0.10% 1/16W
R402	1-218-367-91	s	METAL 10K 0.10% 1/16W
R403	1-214-848-00	s	METAL 220 1% 1/2W
R404	1-214-852-00	s	METAL 330 1% 1/2W
R406	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R407	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R501	1-218-367-91	s	METAL 10K 0.10% 1/16W
R502	1-218-367-91	s	METAL 10K 0.10% 1/16W
R503	1-214-848-00	s	METAL 220 1% 1/2W
R504	1-214-852-00	s	METAL 330 1% 1/2W
R506	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R507	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R601	1-218-367-91	s	METAL 10K 0.10% 1/16W
R602	1-218-367-91	s	METAL 10K 0.10% 1/16W
R603	1-214-848-00	s	METAL 220 1% 1/2W
R604	1-214-852-00	s	METAL 330 1% 1/2W
R606	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R607	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R701	1-218-367-91	s	METAL 10K 0.10% 1/16W
R702	1-218-367-91	s	METAL 10K 0.10% 1/16W
R703	1-214-848-00	s	METAL 220 1% 1/2W
R704	1-214-852-00	s	METAL 330 1% 1/2W
R706	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R707	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R801	1-218-367-91	s	METAL 10K 0.10% 1/16W
R802	1-218-367-91	s	METAL 10K 0.10% 1/16W
R803	1-214-848-00	s	METAL 220 1% 1/2W
R804	1-214-852-00	s	METAL 330 1% 1/2W
R806	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R807	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R901	1-218-367-91	s	METAL 10K 0.10% 1/16W
R902	1-218-367-91	s	METAL 10K 0.10% 1/16W
R903	1-214-848-00	s	METAL 220 1% 1/2W
R904	1-214-852-00	s	METAL 330 1% 1/2W
R906	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R907	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1001	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1002	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1003	1-214-848-00	s	METAL 220 1% 1/2W
R1004	1-214-852-00	s	METAL 330 1% 1/2W
R1006	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1007	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1101	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1102	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1103	1-214-848-00	s	METAL 220 1% 1/2W
R1104	1-214-852-00	s	METAL 330 1% 1/2W
R1106	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1107	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
R1111	1-216-607-91	s	METAL FILM CHIP 15 0.5% 1/10W
R1201	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1202	1-218-367-91	s	METAL 10K 0.10% 1/16W
R1203	1-214-848-00	s	METAL 220 1% 1/2W
R1204	1-214-852-00	s	METAL 330 1% 1/2W
R1206	1-218-366-91	s	METAL 3.3K 0.10% 1/16W

Parts that are not listed in the "reference numbers order list" are shown in the "General Purpose Electrical Parts List".

(ASW-18L BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R1207	1-218-366-91	s	METAL 3.3K 0.10% 1/16W
RV101	1-238-740-11	s	RES, ADJ, CERMET 20
RV201	1-238-740-11	s	RES, ADJ, CERMET 20
RV301	1-238-740-11	s	RES, ADJ, CERMET 20
RV401	1-238-740-11	s	RES, ADJ, CERMET 20
RV501	1-238-740-11	s	RES, ADJ, CERMET 20
RV601	1-238-740-11	s	RES, ADJ, CERMET 20
RV701	1-238-740-11	s	RES, ADJ, CERMET 20
RV801	1-238-740-11	s	RES, ADJ, CERMET 20
RV901	1-238-740-11	s	RES, ADJ, CERMET 20
RV1001	1-238-740-11	s	RES, ADJ, CERMET 20
RV1101	1-238-740-11	s	RES, ADJ, CERMET 20
RV1201	1-238-740-11	s	RES, ADJ, CERMET 20
S1	1-516-278-00	s	SWITCH, SLIDE
S101	1-552-509-00	s	SWITCH, DIP 1-CKT
S201	1-552-509-00	s	SWITCH, DIP 1-CKT
S301	1-552-509-00	s	SWITCH, DIP 1-CKT
S401	1-552-509-00	s	SWITCH, DIP 1-CKT
S501	1-552-509-00	s	SWITCH, DIP 1-CKT
S601	1-552-509-00	s	SWITCH, DIP 1-CKT
S701	1-552-509-00	s	SWITCH, DIP 1-CKT
S801	1-552-509-00	s	SWITCH, DIP 1-CKT
S901	1-552-509-00	s	SWITCH, DIP 1-CKT
S1001	1-552-509-00	s	SWITCH, DIP 1-CKT
S1101	1-552-509-00	s	SWITCH, DIP 1-CKT
S1201	1-552-509-00	s	SWITCH, DIP 1-CKT
T1	1-427-603-11	s	TRANSFORMER, AUDIO OUTPUT
TH1	1-807-269-11	s	THERMISTOR

IF-278 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6267-182-A	o	MOUNTED CIRCUIT BOARD, IF-278
C1	1-161-494-00	s	CERAMIC 0.022uF 25V
C2	1-161-494-00	s	CERAMIC 0.022uF 25V
C3	1-161-494-00	s	CERAMIC 0.022uF 25V
C4	1-162-209-31	s	CERAMIC 27PF 5% 50V
C5	1-162-209-31	s	CERAMIC 27PF 5% 50V
C6	1-126-160-11	s	ELECT 1uF 20% 50V
C7	1-161-494-00	s	CERAMIC 0.022uF 25V
C8	1-161-494-00	s	CERAMIC 0.022uF 25V
C9	1-162-199-31	s	CERAMIC 10PF 5% 50V
C10	1-162-199-31	s	CERAMIC 10PF 5% 50V
C11	1-124-584-00	s	ELECT 100uF 20% 10V
C12	1-161-494-00	s	CERAMIC 0.022uF 25V
C13	1-162-286-31	s	CERAMIC 220PF 10% 50V
C14	1-161-494-00	s	CERAMIC 0.022uF 25V
C15	1-124-463-00	s	ELECT 0.1uF 20% 50V
C16	1-126-096-11	s	ELECT 10uF 20% 35V
C17	1-161-494-00	s	CERAMIC 0.022uF 25V
C18	1-161-494-00	s	CERAMIC 0.022uF 25V
C19	1-162-286-31	s	CERAMIC 220PF 10% 50V
C20	1-161-494-00	s	CERAMIC 0.022uF 25V
C21	1-161-494-00	s	CERAMIC 0.022uF 25V
C22	1-124-584-00	s	ELECT 100uF 20% 10V
CN1	1-506-731-11	o	CONNECTOR, 40P
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-19	s	DIODE 1SS119
D8	8-719-911-19	s	DIODE 1SS119
D9	8-719-911-19	s	DIODE 1SS119
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119
D14	8-719-911-19	s	DIODE 1SS119
D15	8-719-911-19	s	DIODE 1SS119
D16	8-719-911-19	s	DIODE 1SS119
D17	8-719-911-19	s	DIODE 1SS119
D18	8-719-911-19	s	DIODE 1SS119
D19	8-719-911-19	s	DIODE 1SS119
D20	8-719-911-19	s	DIODE 1SS119
D21	8-719-911-19	s	DIODE 1SS119
D22	8-719-911-19	s	DIODE 1SS119
D23	8-719-911-19	s	DIODE 1SS119
D24	8-719-911-19	s	DIODE 1SS119
D25	8-719-911-19	s	DIODE 1SS119
D26	8-719-911-19	s	DIODE 1SS119
D27	8-719-911-19	s	DIODE 1SS119
D28	8-719-911-19	s	DIODE 1SS119
D29	8-719-911-19	s	DIODE 1SS119
IC1	8-759-202-89	s	IC TC74HC139P
IC2	8-759-744-98	s	IC MBM27C256A-BVS1201
IC3	8-759-303-94	s	IC HD64B180R0P
IC4	8-752-328-10	s	IC CXK5864BP-10L

(IF-278 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC5	8-759-908-35	s	IC TL7705CP-B
IC6	8-759-916-25	s	IC SN74HC32N
IC7	8-759-926-30	s	IC AM26LS30PC
IC8	8-759-007-10	s	IC MC74HC541N
IC9	8-759-938-68	s	IC CXD1095Q
IC10	8-759-202-11	s	IC TC74HC00P
IC11	8-759-916-29	s	IC SN74HC74N
IC12	8-759-926-32	s	IC AM26LS32PC
JW1	1-564-948-21	o	CONNECTOR, 3P
Q1	8-729-900-85	s	TRANSISTOR DTC144WS
Q2	8-729-900-85	s	TRANSISTOR DTC144WS
Q3	8-729-900-85	s	TRANSISTOR DTC144WS
Q4	8-729-900-85	s	TRANSISTOR DTC144WS
Q5	8-729-900-85	s	TRANSISTOR DTC144WS
Q6	8-729-900-85	s	TRANSISTOR DTC144WS
Q7	8-729-900-85	s	TRANSISTOR DTC144WS
Q8	8-729-900-85	s	TRANSISTOR DTC144WS
Q9	8-729-900-85	s	TRANSISTOR DTC144WS
Q10	8-729-900-85	s	TRANSISTOR DTC144WS
R1	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R2	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R3	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R4	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R5	1-249-393-11	s	CARBON 10K 5% 1/4W
R6	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R7	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R8	1-249-405-11	s	CARBON 100K 5% 1/4W
R9	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R10	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R11	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R12	1-249-405-11	s	CARBON 100K 5% 1/4W
R13	1-249-441-11	s	CARBON 100K 5% 1/4W
R14	1-249-441-11	s	CARBON 100K 5% 1/4W
R15	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R16	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R17	1-249-429-11	s	CARBON 10K 5% 1/4W
R18	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R19	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R20	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R21	1-249-429-11	s	CARBON 10K 5% 1/4W
RB1	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RB2	1-235-005-00	s	RESISTOR BLOCK 47Kx8
RB3	1-235-005-00	s	RESISTOR BLOCK 47Kx8
RB4	1-235-005-00	s	RESISTOR BLOCK 47Kx8
RB5	1-235-005-00	s	RESISTOR BLOCK 47Kx8
S1	1-570-623-11	s	SWITCH, DIP 8-CKT
S2	1-570-623-11	s	SWITCH, DIP 8-CKT
S3	1-570-204-21	s	SWITCH, KEY BOARD
X1	1-567-812-11	s	RESONATOR, CERAMIC 12.288MHz
Z1	1-562-579-21	s	PLUG, SHORTING

Parts taht are not listed in the "reference numbers order list" are shown in the "General Purpose Electrical Parts List".

LE-76 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-631-489-11	o	PRINTED CIRCUIT BOARD, LE-76
4pcs	3-674-390-00	o	HOLDER (B), LED
CN1	1-506-468-11	s	CONNECTOR, 3P, MALE
D1	8-719-812-32	s	LED TLY123, YEL
D2	8-719-812-32	s	LED TLY123, YEL
D3	8-719-812-32	s	LED TLY123, YEL
D4	8-719-812-32	s	LED TLY123, YEL
R1	1-249-408-11	s	CARBON 180 5% 1/4W
R2	1-249-408-11	s	CARBON 180 5% 1/4W
R3	1-249-408-11	s	CARBON 180 5% 1/4W
R4	1-249-408-11	s	CARBON 180 5% 1/4W

MB-264 BOARD (FOR E)

Ref. No. or Q'ty	Part No.	SP	Description
8pcs	7-622-207-05	s	N 2.6, TYPE 2
CN1F	1-566-985-11	o	CONNECTOR, 100P, FEMALE
CN2F	1-566-985-11	o	CONNECTOR, 100P, FEMALE
CN3F	1-566-985-11	o	CONNECTOR, 100P, FEMALE
CN4F	1-566-985-11	o	CONNECTOR, 100P, FEMALE
CN5M	1-506-479-11	o	CONNECTOR, 14P, MALE
CN6M	1-506-477-31	o	CONNECTOR, 12P, MALE
CN8M	1-506-474-11	o	CONNECTOR, 9P, MALE
CN9M	1-506-479-21	o	CONNECTOR, 14P, MALE
CN11M	1-564-921-11	o	CONNECTOR, 7P, MALE
CN12M	1-506-468-11	o	CONNECTOR, 3P, MALE

MB-274 BOARD (FOR J)

Ref. No. or Q'ty	Part No.	SP	Description
8pcs	7-622-207-05	s	N 2.6, TYPE 2
CN1F	1-566-985-11	o	CONNECTOR, 100P, FEMALE
CN2F	1-566-985-11	o	CONNECTOR, 100P, FEMALE
CN3F	1-566-985-11	o	CONNECTOR, 100P, FEMALE
CN4F	1-566-985-11	o	CONNECTOR, 100P, FEMALE
CN5M	1-506-479-11	o	CONNECTOR, 14P, MALE
CN6M	1-506-477-31	o	CONNECTOR, 12P, MALE
CN8M	1-506-474-11	o	CONNECTOR, 9P, MALE
CN9M	1-506-479-21	o	CONNECTOR, 14P, MALE
CN11M	1-564-921-11	o	CONNECTOR, 7P, MALE
CN12M	1-506-468-11	o	CONNECTOR, 3P, MALE

RY-9 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6267-181-A	o	MOUNTED CIRCUIT BOARD, RY-9
C1	1-126-157-11	s	ELECT 10uF 20% 16V
CN1	1-564-857-11	o	CONNECTOR, PS-SF 20P
IC1	8-759-921-84	s	IC SN74HC4514NT
IC2	8-759-234-61	s	IC TD62306P
IC3	8-759-234-61	s	IC TD62306P
R1	1-215-373-31	s	METAL 10 1% 1/6W
RY1	1-515-640-11	s	RELAY
RY2	1-515-640-11	s	RELAY
RY3	1-515-640-11	s	RELAY
RY4	1-515-640-11	s	RELAY
RY5	1-515-640-11	s	RELAY
RY6	1-515-640-11	s	RELAY
RY7	1-515-640-11	s	RELAY
RY8	1-515-640-11	s	RELAY
RY9	1-515-640-11	s	RELAY
RY10	1-515-640-11	s	RELAY
RY11	1-515-640-11	s	RELAY
RY12	1-515-640-11	s	RELAY

Parts that are not listed in the "rdference numbers order list" are shown in the "General Purpose Electrical Parts List".

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠ 1-413-461-11	s	REGULATOR, SWITCHING (ED-110)
1pc	1-944-067-11	s	HARNESS (9PF) 9P/9P/9P

(to LE-76 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
CN1	1-562-148-11	o	HOUSING, 3P
	1-564-026-00	o	CONTACT, FEMALE, AWG26-30

(to MB-264 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
CN5	1-562-185-00	o	HOUSING, 14P
	1-562-580-11	s	CONTACT, FEMALE
CN6	1-562-157-11	o	HOUSING, 12P
	1-562-580-11	s	CONTACT, FEMALE
CN9	1-562-185-00	o	HOUSING, 14P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN11	1-562-822-11	o	HOUSING, 7P
	1-560-764-21	o	CONTACT, FEMALE AWG18-24
CN12	1-562-148-11	o	HOUSING, 3P
	1-564-026-00	o	CONTACT, FEMALE, AWG26-30

(to SWITCHING REGULATOR)

Ref. No. or Q'ty	Part No.	SP	Description
CN1	⚠ 1-562-818-11	o	HOUSING, 3P
	⚠ 1-560-764-21	o	CONTACT, FEMALE AWG18-24
CN3	1-562-822-11	o	HOUSING, 7P
	1-560-764-21	o	CONTACT, FEMALE AWG18-24

Ref. No. or Q'ty	Part No.	SP	Description
CN101	⚠ 1-560-222-11	s	3P INLET
CN201	1-568-817-11	s	CONNECTOR, D-SUB, 25P
	1-563-088-11	o	CONTACT, FEMALE
CN204	1-566-355-21	s	CONNECTOR, D-SUB, 15P
	1-566-353-21	o	CONTACT, FEMALE
S101	⚠ 1-570-384-11	s	SWITCH, ROCKER (AC POWER)

Parts that are not listed in the "reference numbers order list" are shown in the "General Purpose Electrical Parts List".

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠ 1-534-754-15	s	CORD, POWER 3P (FOR J)
1pc	⚠ 1-551-812-00	s	CORD, POWER 3P (FOR USA)
1pc	⚠ 1-556-760-11	s	CORD, POWER 3P (FOR UK)
1pc	1-564-997-11	o	PLUG, BNC (WITH RESISTOR)
1pc	1-943-888-12	o	HARNESS (UNIT) 25P/25P
1pc	2-990-242-01	o	HOLDER (B), PLUG
2pcs	3-668-459-00	s	SCREW, CONNECTOR

SW-354 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6267-176-A	o	MOUNTED CIRCUIT BOARD, SW-354
1pc	2-130-288-01	o	SUPPORT
1pc	4-612-636-01	s	SCREW, CONNECTOR FITTING
C1	1-124-589-11	s	ELECT 47uF 20% 16V
C2	1-124-589-11	s	ELECT 47uF 20% 16V
CN1	1-568-675-11	o	CONNECTOR, D-SUB 25P
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-19	s	DIODE 1SS119
D8	8-719-911-19	s	DIODE 1SS119
D9	8-719-911-19	s	DIODE 1SS119
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119
D14	8-719-911-19	s	DIODE 1SS119
D15	8-719-911-19	s	DIODE 1SS119
D16	8-719-911-19	s	DIODE 1SS119
D17	8-719-911-19	s	DIODE 1SS119
D18	8-719-911-19	s	DIODE 1SS119
IC1	8-759-921-85	s	IC SN74HC4515NT
IC2	8-759-921-85	s	IC SN74HC4515NT
Q1	8-729-119-78	s	TRANSISTOR 2SC2603-E
R1	1-215-405-00	s	METAL 220 1% 1/6W
R2	1-215-409-00	s	METAL 330 1% 1/6W
R3	1-215-373-31	s	METAL 10 1% 1/6W
R4	1-215-373-31	s	METAL 10 1% 1/6W
R5	1-215-453-00	s	METAL 22K 1% 1/6W
R6	1-215-453-00	s	METAL 22K 1% 1/6W
R7	1-215-469-00	s	METAL 100K 1% 1/6W
R8	1-215-469-00	s	METAL 100K 1% 1/6W
R9	1-215-469-00	s	METAL 100K 1% 1/6W
R10	1-215-469-00	s	METAL 100K 1% 1/6W
R11	1-215-469-00	s	METAL 100K 1% 1/6W
R12	1-215-469-00	s	METAL 100K 1% 1/6W
R13	1-215-469-00	s	METAL 100K 1% 1/6W
R14	1-215-469-00	s	METAL 100K 1% 1/6W
S1	1-571-966-12	s	SWITCH, PUSH
S2	1-571-966-12	s	SWITCH, PUSH
S3	1-571-966-12	s	SWITCH, PUSH
S4	1-571-966-11	s	SWITCH, PUSH
S5	1-571-966-11	s	SWITCH, PUSH
S6	1-571-966-11	s	SWITCH, PUSH
S7	1-571-966-11	s	SWITCH, PUSH
S8	1-571-966-11	s	SWITCH, PUSH
S9	1-571-966-11	s	SWITCH, PUSH
S10	1-571-966-11	s	SWITCH, PUSH
S11	1-571-966-11	s	SWITCH, PUSH
S12	1-571-966-11	s	SWITCH, PUSH
S13	1-572-001-11	s	SWITCH, PUSH
S14	1-572-001-21	s	SWITCH, PUSH

ACCESSORY SUPPLIED

Ref. No. or Q'ty	Part No.	SP	Description
1	1-574-883-11	o	CORD, CONNECTION

Parts that are not listed in the "reference number order list" are shown in the "General Purpose Electrical Part List".

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